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POLLUTION OF THE INTERSTATE WATERS OF THE MERRIMACK AND NASHUA RIVERS AND THEIR TRIBUTARIES, MASSACHUSETTS-NEW HAMPSHIRE AND OF THE INTERSTATE PORTIONS OF THOSE WATERS WITHIN THE STATE OF MASSACHUSETTS. PROCEEDINGS OF CONFERENCE SESSION (2nd) HELD AT CONCORD, NEW HAMPSHIRE ON DECEMBER 18, 1968

Federal Water Pollution Control Administration
Washington, D.C.

1968

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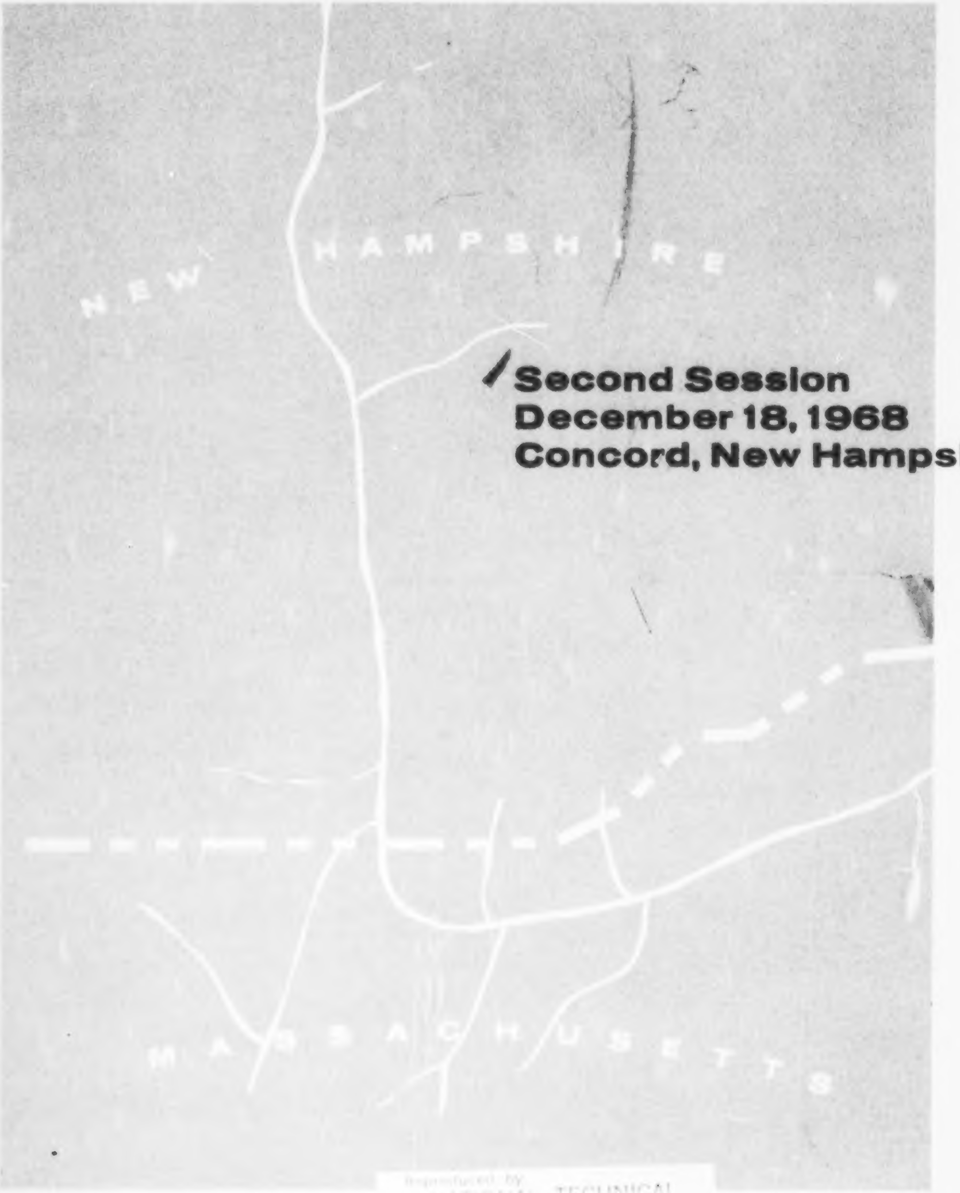

Second Session
December 18, 1968
Concord, New Hampshire

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CONFERENCE

Pollution of the Interstate Waters of the Merrimack and Nashua Rivers and their Tributaries, Massachusetts—New Hampshire and of the Intrastate Portions of those Waters within the State of Massachusetts

U. S. Department of the Interior—Federal Water Pollution Control Administration

334

U. S. DEPARTMENT OF THE INTERIOR

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

CONFERENCE

IN THE MATTER OF POLLUTION OF THE INTERSTATE WATERS OF THE MERRIMACK AND NASHUA RIVERS AND THEIR TRIBUTARIES (MASSACHUSETTS - NEW HAMPSHIRE) AND OF THE INTRASTATE PORTIONS OF THOSE WATERS WITHIN THE STATE OF MASSACHUSETTS.

Second Session
Concord, New Hampshire

Wednesday, December 18, 1968

Convened, pursuant to notice, at 9:30 a.m.

CONTENTS

	PAGE
Opening Statement - By Mr. Stein	17
STATEMENT OF:	
Thomas E. McMahon	24, 189 and 250
Honorable Thomas Urie	26
Lester Klashman	31 and 254
Herbert R. Pahren	32
Thomas A. Schrader (For Richard E. Griffith)	93
Charles D. Larson	105
Arthur Newell	117
William A. Healy	118
James A. Sweeney	119
Clarence Metcalf	125
Honorable Maurice L. Bouchard	144
Bertrand Bouchard	149
Donald [illegible]. Ethier	151
Donald C. Calderwood	155 and 184
Honorable John C. Mangan	160
John E. Dodge	164
Eliot Priest	167
John E. Henchey	175
Mrs. Selwyn Taylor	177
Sheldon Morrill	185

CONTENTS

PAGE

John B. Cassaza 195

Richard Young 229

John J. Pobst 233

Mrs. Hugh F. Stoddart 235

Donald E. Boucher 248

Closing Statements 258

Appendix A

Appendix B

Second session of the conference in the matter of pollution of the interstate waters of the Merrimack and Nashua Rivers and their tributaries (Massachusetts - New Hampshire) and of the intrastate portions of those waters within the State of Massachusetts, held under the provisions of the Federal Water Pollution Control Act. Held at New Hampshire Highway Motel, Concord, New Hampshire, December 18, 1968, (9:30 a.m.)

PRESIDING:

Mr. Murray Stein, Assistant Commissioner for Enforcement, U. S. Department of the Interior, Federal Water Pollution Control Administration, Washington, D. C.

CONFEREES:

William A. Healy, Executive Director, New Hampshire Water Supply and Pollution Control Commission, Concord, New Hampshire.

James A. Sweeney, Vice Chairman, New Hampshire Water Supply and Pollution Control Commission, Concord, New Hampshire

CONFEREES (Continued)

Thomas C. McMahon, Director, Division of Water Pollution Control, Massachusetts Department of Natural Resources, Boston Massachusetts

Alfred Peloquin, Ececutive Secretary, New England Interstate Water Pollution Control Commission, Boston, Massachusetts

Lester Klashman, Director, Northeast Regional Office, U. S. Department of the Interior, Federal Water Pollution Control Administration, Boston, Massachusetts

PARTICIPANTS:

Betrand Bouchard, Alderman, City of Nashua, Chairman, Nashua River Water Pollution Committee, Nashua, New Hampshire.

Maurice L. Bouchard, Representative, General Court Alderman, District 14 of Nashua, Nashua, New Hampshire.

Donald E. Boucher, Lancaster Representative for Clean Up of the Nashua River, Lancaster, Massachusetts.

Donald C. Calderwood, Member, New Hampshire Water Supply and Pollution Control Commission, Nashua, New Hampshire.

John B. Cassaza, Supervisory Sanitary Engineer, Division of Water Pollution Control, Massachusetts Department of Natural Resources, Boston, Massachusetts.

John E. Dodge, Coordinator, New Hampshire Committee for Better Water, Concord, New Hampshire.

Donald L. Ethier, Alderman, District 1 of Nashua, Nashua, New Hampshire.

Terrence P. Frost, Chief Aquatic Biologist, New Hampshire Water Supply and Pollution Control Commission, Concord, New Hampshire.

John E. Henchey, City Manager, Concord, New Hampshire.

Thomas A. Lacava, Chief Water Pollution Engineer, New Hampshire Water Supply and Pollution Control Commission, Concord, New Hampshire.

Charles D. Larson (Statement entered as if read), Region 1 Shellfish Consultant, Department of Health, Education, and Welfare, U. S. Public Health Service, Boston, Massachusetts.

Clarence W. Metcalf, Director of Municipal Services, New Hampshire Water Supply and Pollution Control Commission, Concord, PARTICIPANTS (Continued):

New Hampshire.

John C. Mongan, Mayor of Manchester, Manchester, New Hampshire

Sheldon Morrill, City Council, Franklin, New Hampshire

Arthur E. Newell, Supervisor, Fisheries Research, New Hampshire Fish and Game Department, Concord, New Hampshire

Herbert R. Pahren, Director, Technical Programs, U. S. Department of the Interior, Federal Water Pollution Control Administration, Boston, Massachusetts

John J. Pobst, Staff Consultant, Greater Lowell Planning Commission, Lowell, Massachusetts

Eliot Priest, Vice President and Chief Engineer, Public Service Company of New Hampshire, New Hampshire

Thomas A. Schrader (representing Regional Directors, Bureau of Sport Fisheries and Wildlife, Bureau of Commercial Fisheries) Assistant Regional Director, U. S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, Boston, Massachusetts

Mrs. Hugh F. Stoddart, Massachusetts Coordinator, Nashua River Clean Up Committee, Groton, Massachusetts

Mrs. Selwyn Taylor, Chairman, Water Resources Committee, League of Women Voters of New Hampshire, Nashua, New Hampshire

Honorable Thomas Urie, Representative, General Court, New Hampton, New Hampshire

Richard H. Young, Executive Director, Central Merrimack Valley Regional Planning District, Lawrence, Massachusetts

OTHERS IN ATTENDANCE:

Guy C. Aldridge, Executive Director, Manchester Taxpayers Association, Box 864, Manchester, New Hampshire

R. S. Audley, President, R. S. Audley Corporation, Route 3A, Bow, New Hampshire

Karl C. Ayers, Sanitary Engineer, The Mead Corporation, Central Research Laboratories, Chillicothe, Ohio

Fred C. Benson, Jr., Wildlife Biologist, U. S. Fish and Wildlife Service, 55 Pleasant Street, Concord, New Hampshire

Mrs. Mildred Boisclair, 120 Chauncey Avenue, Manchester, New Hampshire

Bert Bouchard, Alderman, city of Nashua, Chairman, Nashua River Water Pollution Committee, Nashua, New Hampshire

Maurice L. Bouchard, Representative, General Court, Alderman-at-Large, Nashua River Water Pollution Committee, 17 Charles Street, Nashua, New Hampshire

Donald E. Boucher, Lancaster Representative to assist and coordinate the clean-up of the Nashua River, 100 Shirley Road, Lancaster, Massachusetts

Wesley E. Brown, Supervising Engineer, Anderson-Nichols & Company, Inc., 10 Commercial Street, Concord, New Hampshire

Richard A. Buck, New Hampshire Water Supply and Pollution Control Commission, Hancock, New Hampshire

OTHERS IN ATTENDANCE (Continued):

Donald C. Calderwood, New Hampshire Water Supply and Pollution Control Commission, P. O. Box 743, Nashua, New Hampshire

Raymond H. Carignan, Chemist, Public Service Company of New Hampshire, Manchester, New Hampshire

Robert J. Caron, Surveyor, Department of Highways, 227 Maple Street, Manchester, New Hampshire

John B. Casazza, Supervisory Sanitary Engineer, Division of Water Pollution Control, State Office Building, Boston, Massachusetts

Russell G. Claflin, Chairman, Resources, Recreation, and Development Committee, New Hampshire House of Representatives, Box 577, Wolfeboro, New Hampshire

Lindsay M. Collins, Sanitary Engineer, Anderson-Nichols & Company, Inc., 10 Commercial Street, Concord, New Hampshire

Daniel J. Costello, Associate, Hayden, Harding & Buchanan, Inc., 1340 Soldiers Field Road, Boston, Massachusetts

E. J. Cullum, Audubon Society, 67 Shark Lane, Manchester, New Hampshire

John E. Dodge, Coordinator, New Hampshire Committee for Better Water, 55 State Street, Concord, New Hampshire

Robert B. Edwards, Selectman, Henniker, New Hampshire

OTHERS IN ATTENDANCE (Continued):

Carl L. Eidam, Jr., Aquatic Biologist, New England Basins Office, FWPCA, 240 Highland Avenue, Needham Heights, Massachusetts

Cecil T. Enright, Motel Operator representing On the Merrimack, 58 Manchester Street, Concord, New Hampshire

Donald L. Ethier, Ward 1 Alderman, city of Nashua, 6 Sioux Avenue, Nashua, New Hampshire

Alfred Fantini, Secretary, Merrimack River Valley Sewerage Board, 65 Beach Street, Haverhill, Massachusetts

John H. Foster, Partner, Malcolm Pirnie, Engineers, 226 Westchester Avenue, White Plains, New York

Terrence P. Frost, Chief Aquatic Biologist, New Hampshire Water Supply and Pollution Control Commission, Concord, New Hampshire

Harry Greenfield, Sales Representative, Hileo Supply, 665 Central Avenue, Dover, New Hampshire

John F. Grogan, Executive Director, Southern N Hampshire Planning Commission, 908 Elm Street, Manchester, New Hampshire

John E. Harney, Wildlife Biologist, Bureau of Sport Fisheries and Wildlife, 55 Pleasant Street, Concord, New Hampshire

George T. Healy, Assistant Surveyor, city of Manchester, 227 Maple Street, Manchester, New Hampshire

Mrs. William Halieisen, Nashua River Clean-up Committee, Bayberry Road, Pepperell, Massachusetts

OTHERS IN ATTENDANCE (Continued):

Allyn W. Hemenway, Enforcement Officer, Northeast Region, FWPCA, Boston, Massachusetts

John E. Henchey, City Manager, city of Concord, Green Street, Concord, New Hampshire

George A. Hill, Sanitary Inspector, Concord Health Department, City Hall, Green Street, Concord, New Hampshire

James F. Hogan, City Engineer, city of Nashua, Nashua, New Hampshire

John S. Holden, Fenton G. Keyes Associates, 120 Main Street, Nashua, New Hampshire

Russell A. Holden, Vice President, New England Power Company, 4 Park Street, Concord, New Hampshire

Peter D. Hughes, Water Control Engineer, Weyerhaeuser Company, Box 601, Fitchburg, Massachusetts

David Kittredge, Water Supply Engineer, Manchester Water Works, 241 Lincoln Street, Manchester, New Hampshire

Vernon A. Knowlton, Water Resources Engineer, New Hampshire Water Resources Board, Concord, New Hampshire

Myron O. Knudson, Acting Chief, Operations Branch, New England Basins Office, FWPCA, 240 Highland Avenue, Needham Heights, Massachusetts

Clifton L. Kuchinski, U. S. General Accounting Office, John F. Kennedy Federal Building, Boston, Massachusetts

OTHERS IN ATTENDANCE (Continued):

Ray F. Langer, Chairman, Board of Sewer Commissioners, Main Street, Hooksett, New Hampshire

Warren K. Lewellen, Chairman, Merrimack Valley Sewer Commission, 145 Davis Road, Bedford, Massachusetts

Fred Lynch, Operations Engineer, Continental Can Company, South Kimball Street, Haverhill, Massachusetts

David L. Mann, Executive Director, New Hampshire Municipal Association, P. O. Box 617, Concord, New Hampshire

Fred D. McCutchen, Planning Director, City of Nashua, 92 Main Street, Nashua, New Hampshire

James J. McKeown, Regional Engineer, National Council for Stream Improvement, Tufts University, Medford, Massachusetts

Thomas C. McMahon, Director, Division of Water Pollution Control, State Office Building, Boston, Massachusetts

John S. McQuade, Chief, Plans and Services, Fort Devens, Ayer, Massachusetts

John C. Mongan, Mayor of Manchester, City Hall, Manchester, New Hampshire

Robert Morin, Commissioner, Board of Sewer Commissioners, Main Street, Hooksett, New Hampshire

Romeo P. Morin, P. E., 635 Coolidge Avenue, Manchester, New Hampshire

Sheldon Morrill, City Council, Lawndale Road, Franklin, New Hampshire

OTHERS IN ATTENDANCE (Continued):

Fred T. Mullen, 96 Chauncey Avenue, Manchester, New Hampshire

Irene L. Mullen, 96 Chauncey Avenue, Manchester, New Hampshire

Joseph F. Nelson, Project Director, Manchester Housing Authority, 12 Market Street, Manchester, New Hampshire

Arthur E. Newell, New Hampshire Fish and Game Department, Concord, New Hampshire

Roland S. Nickless, Representative, Fish and Game, Inc., 727 Fairfield Street, Manchester, New Hampshire

Howard Northridge, Chairman, Manchester Highway Commission, Manchester, New Hampshire

Warren H. Oldaker, Acting Chief, Laboratory Branch, New England Basins Office, FWPCA, 240 Highland Avenue, Needham Heights, Massachusetts

Herbert R. Pahren, Director, Technical Programs, Northeast Region, FWPCA, Boston, Massachusetts

Alfred E. Peloquin, Executive Secretary, New England Interstate Water Pollution Control Commission, 73 Tremont Street, Boston, Massachusetts

Frank E. Pendleton, Jr., Engineer, Fitchburg Paper Company, Fitchburg, Massachusetts

Raymond W. Peters, Plant Engineer, The Mead Corporation, 250 Canal Street, Lawrence, Massachusetts

OTHERS IN ATTENDANCE (Continued):

John J. Pobst, Staff Consultant, Greater Lowell Area Planning Commission, 205 Middle Street, Lowell, Massachusetts

Richard M. Power, Massachusetts State Department of Public Health, State House, Boston, Massachusetts

Eliot Priest, Vice President, Public Service Company of New Hampshire, 1087 Elm Street, Manchester, New Hampshire

Thomas Reed, Executive Secretary, Merrimack Valley Region Association, 48 Hanover Street, Suite 36, Manchester, New Hampshire

B. M. Reen, City Engineer, Manchester Highway Department, 227 Maple Street, Manchester, New Hampshire

Jerome Resnick, Environmental Engineer, Monsanto Biodize Systems, 112-20 14th Avenue, College Point, New York

George B. Roberts, Jr., State Representative, R. F. D. 1, Gilmanton, New Hampshire

Paul E. Roche, Chemical Engineer, Gilbert Associates, Inc., 525 Lancaster Avenue, Reading, Pennsylvania

John F. Scarola, Fishery Biologist, New Hampshire Fish and Game Department, Concord, New Hampshire

Thomas A. Schrader, Assistant Regional Director, U. S. Bureau of Sport Fisheries and Wildlife, Post Office and Courthouse Building, Boston, Massachusetts

Don Sinville, Assistant to the President, Public Service Company of New Hampshire, Manchester, New Hampshire

OTHERS IN ATTENDANCE (Continued):

William A. Slagle, Jr., Associate Civil Engineer, Division of Water Pollution Control, State Office Building, Boston, Massachusetts

Donald R. Smith, Chief, Program Management, New England Basins Office, FWPCA, 240 Highland Avenue, Needham Heights, Massachusetts

Mrs. Hugh F. Stoddart, Coordinator, Massachusetts Nashua River Clean-up Committee, Groton, Massachusetts

F. William Swaine, Civil Engineer, New England Division, Corps of Engineers, U. S. Department of the Army, 424 Trapelo Road, Waltham, Massachusetts

Mrs. Selwyn Taylor, Chairman, Water Resources Committee, League of Women Voters of New Hampshire, 20 Lock Street, Nashua, New Hampshire

Worthen H. Taylor, Water Quality Standards Coordinator, Northeast Region, FWPCA, Boston, Massachusetts

Bert Teague, Vice President, Anderson-Nichols & Company, Inc., 10 Commercial Street, Concord, New Hampshire

J. F. Theriault, Chemist, Continental Can Company, Haverhill, Massachusetts

H. Thomas Urie, Representative, New Hampshire General Court, New Hampton, New Hampshire

Henry C. Waldo, Manager, Wood Department, Franconia Paper Corporation, Lincoln, New Hampshire

OTHERS IN ATTENDANCE (Continued):

W. Ray Walker, Regional Planner, Southern New Hampshire Planning Commission, 908 Elm Street, Manchester, New Hampshire

Norrel Wallace, Area Supervisor, Bureau of Sport Fisheries and Wildlife, 55 Pleasant Street, Concord, New Hampshire

Philip Wightman, Fishery Biologist, New Hampshire Fish and Game Department, 34 Bridge Street, Concord, New Hampshire

Richard H. Young, Executive Director, Central Merrimack Valley Regional Planning District, 477 Essex Street, Lawrence, Massachusetts

PROCEEDINGS

OPENING STATEMENT

BY

MR. MURRAY STEIN

CHAIRMAN STEIN: The second session of the conference in the matter of pollution of the interstate waters of the Merrimack and Nashua Rivers and their tributaries (Massachusetts - New Hampshire) and of the intrastate portions of those waters within the State of Massachusetts, held under the provisions of the Federal Water Pollution Control Act.

Under the provisions of the Act, the Secretary of the Interior is authorized to call a conference of this type when, on the basis of reports, surveys or studies, he has reason to believe that pollution of interstate waters subject to abatement under the Federal Act is occurring, or when he has received a request from a State governor to do so. Both circumstances apply to this conference.

The purpose of the conference is to bring together the State and interstate water pollution control agencies, representatives of the United States Department of the

Interior and the other interested parties to review the existing situation and the progress which has been made, to lay a basis for future action by all parties concerned, and to give the States, localities and industries an opportunity to take any indicated remedial action under State and local law.

The first session of this conference was held on February 11, 1964, on the basis of reports, surveys, or studies, and upon the request of the Honorable Endicott Peabody, Governor of Massachusetts.

At the first conference session, the conference agreed that remedial measures being undertaken were not adequate to abate pollution, due in part to a lack of finances and the resulting heavy burden to be placed on waste discharges.

The Secretary of Health, Education, and Welfare, in whom Federal enforcement authority then resided, issued the following Federal requirements for the conference area after the first session:

That the Merrimack and Nashua Rivers and their tributaries be classified as to future highest uses by 1965;

That by May 1, 1966, all communities arrange, vote and authorize financing for remedial facilities, and that all municipal and industrial sources of pollution have their plans and specifications approved by the appropriate State water pollution control agency;

That by May 1, 1967, construction be started on all waste treatment facilities, which then be placed in operation within a reasonable time after the initiation of construction;

That appropriate action be taken by New Hampshire and Massachusetts under their water pollution programs and State and local laws to carry out an effective pollution abatement program, the program and schedule of compliance for New Hampshire to be commensurate with that which Massachusetts established soon after the holding of the first conference session.

This session of the conference was called for the purpose of reviewing the status of both States' pollution abatement programs since the first conference session.

As specified in section 10 of the Federal Water Pollution Control Act, the Secretary of the Interior has notified the official State water pollution control agencies of New Hampshire and Massachusetts and the New England Interstate Water Pollution Control Commission of this conference. This conference is between the official State and interstate agencies and the United States Department of the Interior. The New Hampshire Water Supply and Pollution Control Commission will be represented by Mr. James A. Sweeney, Vice Chairman of the Commission, and Mr. William Healy. The Massachusetts Department of Natural Resources will be represented by Thomas McMahon, accompanied by Mr. John B. Cassaza. The representative of the New England Interstate Water Pollution Control Commission is Mr. Alfred Peloquin. Mr. Lester Klashman has been designated as conferee for the Federal Government.

My name is Murray Stein. I am from headquarters of the Department of the Interior, Washington, D. C., and the representative of the Secretary of the Interior Stewart Udall.

The parties to this conference are the representatives of the State and interstate agencies and the United States Department of the Interior. Participation in the conference will be open to representatives and invitees of these agencies and such persons as inform me that they wish to present a statement. However, only the representatives of New Hampshire, Massachusetts and the New England Interstate Commission and the United States Department of the Interior constitute the conferees.

Both the State and Federal Governments have responsibilities in dealing with water pollution control problems. The Federal Water Pollution Control Act declares that the States have primary rights and responsibilities for taking action to abate and control pollution. Consistent with this, we are charged by law to encourage the States in these activities.

At the same time, the Secretary of the Interior is charged by law with specific responsibilites in the field of water pollution control in connection with pollution of interstate and navigable waters. The Federal Water Pollution Control Act provides that pollution of interstate or navigable waters which endangers the health or welfare of any persons shall be subject to abatement. This applies whether the matter causing or contributing to the pollution is discharged directly into such waters or reaches such waters after discharged into a tributary.

Now a word about the procedures governing the conduct of the conference. The conferees will be called upon to make statements. The conferees, in addition, may call upon participants whom they have invited to the conference to make statements. In addition, we shall call other interested individuals to present statements, but I would suggest that anyone who wishes to make a statement get in touch first with his representative, either from Massachusetts or New Hampshire, and have him call you. Each one of the States will manage its own time.

At the conclusion of each statement, the conferees will be given an opportunity to comment or ask questions, and I may ask a question or two. This procedure has proven effective in the past in reaching equitable solutions.

Now, let me make this clear. We will not entertain questions from the floor. Because if we did that, we would be here for a very long time; and I do not know whether we would arrive at any more equitable solution than we do by this procedure.

However, everyone who whishes will have an opportunity to say his piece. Just hold it until we call you. If you have questions or queries when you are called in an orderly manner, you can put them forward.

At the end of all the statements, we will have a discussion among the conferees and try to arrive at a basis of agreement on the facts of the situation. Then we shall attempt to summarize the conference orally, giving the conferees, of course, the right to amend or modify this oral summary.

A record or a verbatim transcript of the conference is being made. This is for the purpose of aiding us in preparing a summary and, also, for providing a complete record of what is said here. It usually takes about four or six months for the transcript to come out in printed form. If you wish a record beforehand, you can check with the reporter, who is on contract, and make your own arrangements with him.

I might indicate that we do not print out transcripts in color. So take that into account on any charts you may present which are in color. The reproduction will come out in black and white. Try not to refer to colors if you use graphic aids in your presentation, as they will be meaningless when the transcript is printed.

We will make copies of the summaries and transcript available to the official State and interstate water pollution control agencies. The Secretary will prepare a written summary of this conference and send it forth, generally within several weeks after the conference is concluded.

We have found that for the purpose of maintaining relationships within the States, the people who wish summaries and transcripts should request them through their State or interstate agency rather than come directly to the

Federal Government. The reason for this is that, when the conference has been concluded, we would prefer people who are interested in the problem to follow their normal realtions in dealing with the State or interstate agencies rather than the Federal Government. Again, this has worked successfully in the past, and we will be most happy to make this material available for distribution.

I would suggest that all speakers or participants, other than the conferees, making statements come to the lectern and identify themselves for the purpose of the record.

Our general procedure is going to be to call on the Federal Government for statements first, New Hampshire, followed by Massachusetts, then the New England Interstate Agency. They will call on their participants. However, the agenda is flexible. If we have any specific problem, I am sure we can meet it.

First we have two out of order. Just to start this, Mr. McMahon of Massachusetts has a short statement to make at this time. Mr. McMahon.

STATEMENT OF THOMAS McMAHON, DIRECTOR, DIVISION OF WATER POLLUTION CONTROL, MASSACHUSETTS WATER RESOURCES COMMISSION, DEPARTMENT OF NATURAL RESOURCES, BOSTON, MASSACHUSETTS

Thomas McMahon

MR. McMAHON. Thank you, Mr. Chairman.

First, I would like to announce that Commissioner Yasi could not be here. He is on a special assignment for the Governor. He expresses his regrets and we hope to see him in the very near future.

A second one is a general statement that Massachusetts has made at a number of Federal enforcement conferences earlier, and I would like to read it into the record, with your permission, Mr. Chairman, at this time:

"Mr. Chairman, the Massachusetts Division of Water Pollution Control is present today in the spirit of cooperation with the Federal Water Pollution Control Administration, the New England Interstate Water Pollution Control Commission and the New Hampshire Water Supply and Pollution Control Commission. Any material, whether written or oral, presented at this conference shall in no way commit the Commonwealth to changes in the Massachusetts standards of water quality approved by the Massachusetts Water Resources Commission and the Secretary of the Interior and shall not convey any authority that transcends the jurisdictional authority vested in the Massachusetts Clean Waters Act or the Federal Water and Pollution Control Act."

Thank you.

CHAIRMAN STEIN. Thank you, Mr. McMahon.

Honorable Thomas Urie

Now, we also at this point would like to call on Representative Urie, Thomas Urie of New Hampshire who has requested to make the statement now because he has other commitments. Representative Urie.

STATEMENT OF THE HONORABLE THOMAS URIE
REPRESENTATIVE, GENERAL COURT
NEW HAMPTON, NEW HAMPSHIRE

REPRESENTATIVE URIE. Thank you, Mr. Chairman.

I am Representative Thomas Urie, Belknap, District 1, and one of the people who has the job of presenting water pollution legislation to the New Hampshire Legislature.

As a rule, I do not like to read a speech, but in this particular instance I feel that I should do so.

At this time, I would like to comment on this State's pollution control effort, and in particular the work which has been accomplished or is now under way in the Pemigewasset-Merrimack River system.

Many of you are aware that I have been an ardent supporter of clean waters for years. It has never been necessary for anyone to sell me on the need of cleaning up and protecting our surface waters. My efforts over the years in this area speak for themselves, and I will add that I have closely followed the program of the New Hampshire Water Supply and Pollution Control Commission, and agree in every way with its content and timetable for construction of pollution control facilities.

Regarding this construction schedule of sewage and industrial waste treatment plants, I would like to point to what is now taking place on the Pemigewasset River. From the town of Woodstock to the point where the Pemigewasset joins the Merrimack, there are six towns and one industry which are engaged in construction, or have completed pollution abatement facilities. By this time next year, every municipality and industry along the Pemigewasset and its tributaries will be effectively controlling pollution, and I am convinced that the realistic timetable established by the Water Supply and Pollution Control Commission will accomplish the same results for the balance of the river system to the Massachusetts line.

Now to get down to the matter of financing. On the State side of the picture, New Hampshire has the highest aid program of any of the 50 States; 40 percent, and may I digress there for a minute.

Yesterday I filed a bill, which I hope will get attention, which will increase it to 50 percent.

We reimburse municipalities over the life of their bonded indebtedness for the project, provide interest on the State's share, and guarantee bond issues used for this work. This State has committed itself to over $15,000,000 in State grants since 1959, and never once has it failed to meet its financial responsibilities.

I am well aware that we have nearly $150,000,000 of pollution control work to complete in this State, of which nearly $60,000,000 is on the Merrimack or its tributaries. Even though this represents a much heavier burden than most other States must carry, I feel extremely confident that New Hampshire will continue to meet its future obligations from both the standpoint of time and money.

Regarding the time involved to accomplish this work, I have already indicated that I am totally in agreement with the schedule submitted with this State's standards for compliance by 1977 on interstate waters, and I will add that my active support was given to the Act which was known as Senate Bill 83, passed by our 1967 Legislature of which I was a member. In putting these requirements of the Water Quality Act of 1965 into New Hampshire law, we even went to the point of stating our objectives which call for the initial objective of primary treatment with adequate disinfection of discharges of sewage and industrial wastes, followed by a second objective which would require secondary treatment wherever necessary to protect uses assigned to the particular stream classification. We even went beyond this with objectives relating to more refined treatment, but the point which I intend to emphasize is that New Hampshire should adhere to the first objective of primary treatment throughout the State before we proceed to the second, third or any other objective. This, as the law says, is "a matter of legislative intent." That was what we passed in the Legislature--that it was our intent to proceed beyond primary after we had got the entire State on the primary treatment basis.

To conclude, I will mention once again that New Hampshire has never once failed to meet its financial obligations in controlling water pollution. Its schedule to reach the clean waters goal is realistic in every way, and its initial objective of primary treatment throughout has my unqualified support.

In addition, I can see no justification on the part of the Federal Government in making any demands on this State over and above those which we have stated, especially when it has failed to meet authorized financial commitments by better than 50 percent during the past year. To me this means but one thing the Federal Government has not produced the money that it was supposed to produce in the last biennium, but now they are asking the State to go ahead with its commitments and the Federal Government, I am afraid, is a little bit lagging in its commitment. So I feel that it is necessary for the Federal Government to live up to its obligations, just the same as it is for the State to live up to its obligations.

Thank you, gentlemen.

CHAIRMAN STEIN. Thank you, Representative Urie.

Are there any comments or questions?

(No response.)

CHAIRMAN STEIN. I would like to commend you on the statement. I know, in meeting with Representative Urie through the years on this problem, there is no one who works harder for pollution control in the State of New Hampshire I think in the United States than Representative Urie. He has been a prime mover in New Hampshire in getting the program going.

As one will develop whatever system of government one represents- State, Federal or local - there are bound to be possibly some differences. However, in dealing with Representative Urie, we have never had these conceptual differences or philosophies stand in the way of trying to get together and meet a problem. As far as I can see, we have always worked out an accommodation. If we proceed in this spirit, I hope we will be able to handle that program. Thank you very much.

MR. Klashman, Director, FWPCA Northeast Regional Office, representing the Federal Government.

STATEMENT OF LESTER KLASHMAN
DIRECTOR, NORTHEAST REGION
U. S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
BOSTON, MASSACHUSETTS

MR. KLASHMAN. This second session of the conference of the Merrimack and Nashua Rivers has the following three objectives from our standpoint:

1) to resolve the schedules for the pollution abatement programs for Manchester, Concord, Plymouth, New Hampshire and those municipalities and industries in Massachusetts where there have been modifications in the dates which have been previously submitted and approved by the

Secretary.

2) to present the results of the technical study of the Merrimack and Nashua Rivers conducted through 1964 and 1965 by the Federal Water Pollution Control Administration.

3) to review the status of compliance with pollution abatement schedules given to the various polluters within the conference area.

I would like to first call on Mr. Herbert Pahren, the Director of Technical Programs for the Northeast Region of the Federal Water Pollution Control Administration to give our statement.

STATEMENT OF HERBERT R. PAHREN
DIRECTOR, TECHNICAL PROGRAMS
NORTHEAST REGION
U. S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
BOSTON, MASSACHUSETTS

MR. PAHREN: Mr. Chairman, conferees, ladies and gentlemen. Mr. Chairman, I would like to introduce the report of our technical study in six parts as an exhibit in this conference but not as part of the transcript.

CHAIRMAN STEIN. Without objection from the conferees, this will be done. We will make copies of this available to the States and they will be on file and available for inspection during the normal business hours at our Regional Office in Boston and at headquarters.

(The above-mentioned Federal report in six parts, marked Exhibit 1, is on file at the Federal Water Pollution Control Administration Northeast Regional Office, Boston, Massachusetts, and Federal Water Pollution Control Administration Office, Washington, D. C.)

How many copies of this do you have for distribution in case anyone wants it?

MR. PAHREN. I think the majority of the people in the audience today have copies already.

CHAIRMAN STEIN. All six?

MR. PAHREN. Yes. Some of them just want the summary.

CHAIRMAN STEIN. Right.

If you really need these, I suggest while the supply lasts you can get them. I would also ask as reasonably concerned and good citizens you just take the summary, so we will have a supply of that technical backup for the people that really make use of it. Thank you.

MR. PAHREN. The summary of our study is as follows:

The Merrimack River is polluted --

MR. KLASHMAN. Excuse me, Mr. Pahren. Did you want the summary entered as if read completely? You are not going to read it all, are you?

MR. PAHREN. The initial summary I will read verbatim from here.

MR. KLASHMAN. I mean are you going to have this whole document made as part of the record?

MR. PAHREN. Part One?

MR. KLASHMAN. Yes.

MR. PAHREN. Yes, I would like Part I included in the transcript as if read.

CHAIRMAN STEIN. Without objection, this will be done.

CHAIRMAN STEIN: Will you continue.

MR. PAHREN. The Merrimack River is polluted by the discharge of raw and partially treated municipal and industrial wastes for most of its length in New Hampshire and Massachusetts. Every day more than 120 million gallons of wastewater flow into the Merrimack River alone, polluting it physically, bacteriologically and chemically. This polluted condition, which has been recognized since the turn of the century, will become progressively worse unless effective abatement action is taken immediately.

The major sources of raw or inadequately treated municipal waste discharged to the Merrimack River Basin are:

New Hampshire: Allenstown, Bristol, Concord, Franklin, Hooksett, Lincoln, Manchester, Milford, Nashua, Pembroke, Plymouth, Wilton.

Massachusetts: Amesbury, Andover, Clinton, Dracut, Fitchburg, Groveland, Haverhill, Lawrence, Leominster, Lowell, Methuen, Newburyport, North Andover, Salisbury.

The major sources of industrial waste discharged to the Merrimack River Basin are:

New Hampshire: Ashland Paper Mills, Ashland; Foster Grant Co., Manchester; Franconia Paper Corp., Lincoln; Granite State Packing Co., Manchester; Granite State Tanning

Co., Nashua; Merrimack Leather Co., Merrimack.

Massachusetts: Continental Can Co , Haverhill; Falulah Paper Co., Fitchburg; Fitchburg Paper Co., Fitchburg; Foster Grant Co., Leominster; Gilet Wool Scouring Corp., Chelmsford; Lawrence Wool Scouring Co., Lawrence; Lowell Rendering Co., Billerica; Mead Corp., Lawrence; Oxford Paper Co., Lawrence; Southwell Combing Co., Chelmsford; St. Regis Paper Co., Pepperell; Weyerhaeuser Paper Co., Fitchburg.

Suspended solids in waste discharges in the study area were equivalent to those in the raw sewage of 1,653,000 persons, with 72 percent originating in Massachusetts. These materials cause deep sludge deposits which deplete the stream oxygen supply, produce offensive odors, reduce or eliminate aquatic life which serves as food for fish, and make once attractive waters appear murky.

Coliform bacteria equivalent to those in the raw sewage from 416,000 persons are discharged to the Merrimack River and its tributaries at the present time, with 34 percent originating in New Hampshire and 66 percent originating in Massachusetts. Sewage effluents receiving no treatment account for 92 percent of the total coliform bacteria in the stream.

Nashua and Hudson, New Hampshire, contributed over

Herbert Pahren

98 percent of the coliform bacteria at the New Hampshire-Massachusetts state line during warm low-flow periods. However, with colder water temperatures and increased flows in the autumn, the Nashua-Hudson portion at the state line was reduced to 50 percent; Manchester, New Hampshire, was responsible for 25 percent of the total; and other upstream communities were responsible for 25 percent. Of the bacteria originating from upstream communities and reaching Newburyport, Massachusetts, 51.4 percent emanated from the Lawrence region, 17.1 percent from the Haverhill region, 31.4 percent from the Amesbury area, and 0.1 percent from the remaining upstream communities.

Coliform densities as high as 9,200,000 per 100 milliliters were found in the Merrimack River. This value, found below Lawrence, is 1,850 times the recommended maximun value of 5,000 per 100 ml. (One hundred milliliters of water is slightly less than one-half cup.) This excessive bacterial pollution presents a health hazard to all who come in contact with the water.

Disease-producing bacteria of the genus Salmonella were consistently recovered from the Merrimack in both New Hampshire and Massachusetts, indicating that ingestion of any water from the Merrimack River before it is treated or of produce from truck farms using untreated river water for

Herbert Pahren

irrigation is a definite health hazard. Salmonellae were isolated during every test made at the Lowell and Lawrence, Massachusetts, water intakes. Typhoid fever, gastroenteritis, and diarrhea are a few of the many diseases of man caused by these bacteria.

Sewage and industrial wastes presently discharged to the basin have an estimated biochemical oxygen demand equivalent to that in the untreated sewage of 1,422,000 persons, of which 693,000 population equivalents are discharged in New Hampshire. BOD is a measure of the ability of a waste to deplete the dissolved oxygen resource of a stream.

Serious depletion of the dissolved oxygen content of the Merrimack River occurred during the study period. For the months of June, July, August and September of 1964 and 1965, minimum dissolved oxygen from Manchester to Newburyport was less than 2.0 parts per million at every station; zero values were found below Haverhill. At no point upstream of Manchester was the minimum value in excess of five parts per million. A value of five parts per million for at least 16 hours a day is one requirement of the New England Interstate Water Pollution Control Commission for Class C waters, C being the class of water considered acceptable for recreational boating, fish habitat and industrial water supply but not for swimming or drinking under normal conditions. Using BOD as an indicator, the most polluted reach of the Merrimack River was between Lawrence and Haverhill, Massachusetts.

BOD crossing the state line from New Hampshire into Massachusetts amounted to 28,800 pounds per day. This is equivalent to the BOD of raw sewage from 169,000 persons. As a result of the reduction in dissolved oxygen, fish, fish food organisms and other desirable forms of aquatic life are destroyed. In addition, when the dissolved oxygen content of the river is sufficiently low, obnoxious gases are given off by the stream, forcing unsightly clumps of sludge to rise to the surface.

Biological stream studies showed that, with few exceptions, the entire length of the Merrimack River is grossly polluted from Franklin, New Hampshire, to its mouth at Newburyport, Massachusetts. Those desirable benthic organisms sensitive in their response to pollution were absent in the lower 57 miles of the Merrimack River. In only four areas did the river recover enough from its despoiled condition to permit a small number of sensitive organisms to exist before additional wastes reduced the quality of the river.

Serious pollution exists in the North Nashua River

Herbert Pahren

from the outfall of the Weyerhaeuser Paper Company, Fitchburg, Massachusetts, to the confluence of the north and south branches of the Nashua River at Lancaster, Massachusetts; in the Nashua River from Lancaster, Massachusetts; in the Nashua River from Lancaster to the mouth of the Nashua River in New Hampshire; in the Squannacook River below the dam at Vose Village; and in the South Branch Nashua River below Clinton, Massachusetts. This pollution affects present and potential water uses.

Discharges from paper mills result in suspended solids, organic matter causing biochemical oxygen demand, and materials causing apparent color in the stream. By far the largest loadings emanate from the three paper industries of Fitchburg, Massachusetts. Excessive bacterial densities, suspended solids, nutrients and organic matter are the result of inadequate sewage treatment, particularly at Fitchburg and Leominster, Massachusetts.

Discharges of suspended solids create a severe problem in the Nashua River. Suspended solids discharged to the Nashua River Basin are equivalent to those in the raw sewage from 556,000 persons. Of these, nearly 92 percent come from the paper mills. It is estimated that 17 million cubic feet of sediments have accumulated in Pepperell pond alone.

Herbert Pahren

Bacteria equivalent to those in the raw sewage of approximately 24,000 persons are discharged to the Nashua River Basin at present. Fitchburg and Leominster, Massachusetts, contribute 90 percent of the total. The coliform bacteria in the North Nashua River were as high as 680 times the recommended maximum value of 5,000 per 100 ml for this stream. Disease-causing bacteria were isolated in both the North Nashua and the South Branch Nashua Rivers.

Sewage and industrial wastes presently discharged to the Nashua River Basin have an estimated biochemical oxygen demand population equivalent of 178,000, of which the paper industries contribute 76 percent of the total. As a result of the reduction in dissolved oxygen, fish, fish food organisms and other desirable aquatic life are destroyed and obnoxious odors are given off by the stream.

Nutrients discharged to the Nashua River Basin result in excessive densities of algae and other aquatic plants, creating a nuisance. These plants may die and decompose, causing unsightly conditions, obnoxious odors and depletion of dissolved oxygen.

Serious pollution exists in the Pemigewasset River from the confluence with the East Branch Pemigewasset River in Lincoln, New Hampshire, to the confluence of the Winnipesaukee River in Franklin, New Hampshire, due to the discharge of sewage and industrial wastes in the basin.

Suspended solids discharged to the Pemigewasset River watershed are equivalent to those in the raw sewage of 287,500 persons, of which over 98 per cent emanate from industrial plants. These solids result in sludge deposits, especially in the impoundment behind Ayers Island Dam. Hydrogen sulfide, resulting from sludge deposits behind this dam, caused thousands of dollars of damage to houses in Bristol, New Hamsphire, on August 18, 1965, and on August 23, 1966, by discoloring the paint on the houses.

Sulfite waste liquor, released to the Pemigewasset River by the Franconia Paper Corporation, not only creates an enormous oxygen demand but also contains lignin sulfonates which persist as the waters flow into Massachusetts. As a result of the sulfite waste liquor, the river is discolored, adding to the water treatment costs at Lowell and Lawrence, Massachusetts

Restricted recreational use of the Merrimack and its tributaries due to their polluted conditions alone caused an estimated loss of $21,300,000 in 1964. There is presently a very limited amount of fishing in the basin, but the U. S. Fish and Wildlife Service has expressed interest in reintroducing salmon and other anadromous fish to the streams once the pollution has been abated.

In 1964 the value of the soft-shell clam harvest amounted to only $14,000 of a potential $1,000,000. Discharges to the Merrimack River estuary from existing sewage treatment plants significantly contribute to the bacterial densities near the shellfish growing areas.

An even greater loss can be attributed to decreased property values and the resulting decrease in the tax revenues caused by the polluted condition of the Merrimack River and its tributaries. In 1964 these losses to communities in the basin amounted to about $14,600,000.

It is estimated that between $37,000,000 and $70,000,000 is being lost annually as a result of pollution in the Merrimack River Basin.

Although the Merrimack River is now used for industrial process water, cooling water, and for hydroelectric power, sand filters and other treatment methods are often employed at the industry's expense to precondition the water before it can be used. An increase in industrial development could be expected once the basin communities can offer improved water quality.

The Merrimack is also used as a municipal water supply

Herbert Pahren

for Lowell and Lawrence, Massachusetts. As the polulation in the basin increases, more and more communities will be turning to the Merrimack to meet their water needs because it is the only water supply of sufficient quantity to meet the demand. Eight basin communities have already expressed interest in the use of the river. Well-designed and efficient sewage treatment plants will be necessary to ensure adequate water quality.

Sewage and industrial wastes continue to be discharged to the Merrimack River and its tributaries in New Hampshire, causing pollution which endangers the health or welfare of persons in Massachusetts; the sewage and industrial wastes discharged to the Merrimack River and its tributaries in Massachusetts cause pollution which endangers the health or welfare of persons in New Hampshire and Massachusetts. Therefore, this pollution is subject to abatement under the provisions of the Federal Water Pollution Control Act (33 United States Code 466 et sequence).

Recommendations:

Many suggestions of the Merrimack River Project concerning water quality criteria and stream classification have already been implemented by the two Basin States in the process of adopting water quality standards. Still others are being considered by the New England Interstate Water

Pollution Control Commission for the region as a whole as well as the basin waters.

Implementation and construction schedules submitted by the States of New Hampshire and Massachusetts and approved by the Secretary of the Interior, as required by the Federal Water Pollution Control Act, as amended, shall be followed for the Merrimack River Basin. Implementation and construction schedules for sources of pollution on intrastate portions of the Merrimack River Basin in Massachusetts shall be in accordance with State and local requirements so as to meet the stream classificiations.

It is recommended that the implementation program for the following New Hampshire communities in the Merrimack River Basin that did not receive approval by the Secretary be as follows:

For Manchester, Concord and Plymouth we are recommending secondary treatment.

For Manchester, final plans and specifications by December 1970; start construction by April 1972; complete construction by December 1974.

For Concord, final plans and specifications by May 1969; start construction by April 1971; complete construction by April 1973.

Plymouth, final plans and specifications by July

1971; start construction by July 1973; complete construction by December 1974.

Consideration shall be given in the water pollution control programs, as necessary, to the following:

1. Sewerage systems with collection sewers terminating in adequate treatment facilities shall be provided in those areas along the stream where sewers do not now exist and where homes discharge either raw wastes or septic tank effluent to the watercourse and where local treatment facilities will not suffice.
2. All new construction of sewer lines and revisions to existing systems shall provide for the separation of storm runoff and sewage.
3. All new and existing waste treatment facilities shall by designed or modified, if possible, to prevent by-passing of untreated wastes during maintenance and renovation operations and power failures.
4. All municipal and industrial wastes in the Merrimack River Basin are to receive a minimum of secondary treatment or equivalent. All effluents containing domestic wastes are to receive adequate disinfection. Maximum removal of nutrients, including phosphates, by the most effective available means is to be provided, as necessary, to meet stream classifications.

Herbert Pahren

5. All industries and municipalities in the area discharging waste material to the public waters shall maintain an inventory of critical waste treatment parts and supplies on the plant premises so that a minimum delay in effective waste treatment will result when replacement or repair is necessary.

6. Consideration shall be given for 24-hour supervised operation of all sewage treatment plants.

7. Provisions shall be made to allow sampling of the final effluent prior to discharge.

8. No backwater or eddies shall exist near the outfall that would hinder mixing. The location of the outfall should be such as to enhance mixing of the treatment plant effluent.

9. Operation of dams in the Merrimack River Basin should be regulated by the appropriate agency so that certain adequate flows are released at all times.

10. All water treatment plants shall dispose of spent activated carbon and settled solids by means other than to the stream.

11. Facilities to accept septic tank truck discharges are to be provided at sewage treatment plants or other approved areas.

Herbert Pahren

12. There shall be no discharges from septic tank cleaning operations directly to the waters of the basin.

13. All marine conveyances equipped with marine toilets operating upon the basin waters shall use a holding tank or other approved pollution control device.

14. The appropriate agency should prohibit garbage or refuse (including automobile bodies and other unsightly debris) from being dumped along the banks of the river, and no open dumps should be allowed on the flood plain. Material in present dump sites along the river banks shall be removed and appearance of the bank restored to an aesthetically acceptable condition. Present open dumps on the flood plain should be converted to sanitary landfills operated acceptably to the appropriate State agencies.

15. In the shellfish growing areas near the mouth of the Merrimack River, the requirements of the National Shellfish Sanitation Program are to be met in order to permit reopening of the maximum number of those areas presently closed to the harvesting of shellfish.

16. Consideration should be given by the city of Newburyport and the town of Salisbury, Massachusetts, to developing an engineering report which would include the relative

merits of:

a. Treatment and joint discharge of the Atlantic Ocean;

b. Individual discharges to the Atlantic Ocean;

c. Joint treatment and discharge to the Merrimack estuary; and

d. Individual discharges to the Merrimack estuary.

In all cases, the report shall include the relative economic values of the estuarine resources.

Mr. Chairman, this completes my statement.

(Part 1, of above-summarized report follows.)

REPORT ON POLLUTION OF THE MERRIMACK RIVER and CERTAIN TRIBUTARIES.

PART 1

SUMMARY, CONCLUSIONS and RECOMMENDATIONS

U.S. Department of the Interior
Federal Water Pollution Administration
Northeast Region
BOSTON, MASSACHUSETTS

REPORT ON POLLUTION OF
THE MERRIMACK RIVER
AND CERTAIN TRIBUTARIES

PART I -- SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

U. S. Department of the Interior
Federal Water Pollution Control Administration
Northeast Region
Boston, Massachusetts

December, 1968

TABLE OF CONTENTS

Page No.

SUMMARY ii

INTRODUCTION 1

STREAM STUDIES -- PHYSICAL, CHEMICAL, AND BACTERIOLOGICAL 3

- Study Area 3
- Pollution Sources 4
- Water Uses 7
- Effects of Pollution on Water Quality 8

STREAM STUDIES -- BIOLOGICAL 14

PILOT PLANT STUDY OF BENTHAL OXYGEN DEMAND 16

NASHUA RIVER 17

PEMIGEWASSET RIVER 20

RECOMMENDATIONS 22

SUMMARY

The Merrimack River is polluted by the discharge of raw and partially treated municipal and industrial wastes for most of its length in New Hampshire and Massachusetts. Every day more than 120 million gallons of waste water flow into the Merrimack River alone, polluting it physically, bacteriologically, and chemically. This polluted condition, which has been recognized since the turn of the century, will become progressively worse unless effective abatement action is taken immediately.

The major sources of raw or inadequately treated municipal waste discharged to the Merrimack River Basin are:

New Hampshire

Allenstown
Bristol
Concord
Franklin
Hooksett
Lincoln
Manchester
Milford
Nashua
Pembroke
Plymouth
Wilton

Massachusetts

Amesbury
Andover
Clinton
Dracut
Fitchburg
Groveland
Haverhill
Lawrence
Leominster
Lowell
Methuen
Newburyport
North Andover
Salisbury

The major sources of industrial waste discharged to the Merrimack River Basin are:

New Hampshire

- Ashland Paper Mills, Ashland
- Foster Grant Co., Manchester
- Franconia Paper Corp., Lincoln
- Granite State Packing Co., Manchester
- Granite State Tanning Co., Nashua
- Merrimack Leather Co., Merrimack

Massachusetts

- Continental Can Co., Haverhill
- Falulah Paper Co., Fitchburg
- Fitchburg Paper Co., Fitchburg
- Foster Grant Co., Leominster
- Gilet Wool Scouring Corp., Chelmsford
- Lawrence Wool Scouring Co., Lawrence
- Lowell Rendering Co., Billerica
- Mead Corp., Lawrence
- Oxford Paper Co., Lawrence
- Southwell Combing Co., Chelmsford
- St. Regis Paper Co., Pepperell
- Weyerhaeuser Paper Co., Fitchburg

Suspended solids in waste discharges in the study area were equivalent to those in the raw sewage of 1,653,000 persons, with 72 per cent originating in Massachusetts. These materials cause deep sludge deposits which deplete the stream oxygen supply, produce offensive odors, reduce or eliminate aquatic life which serves as food for fish, and make once attractive waters appear murky.

Coliform bacteria equivalent to those in the raw sewage from 416,000 persons are discharged to the Merrimack River and its tributaries at the present time, with 34 per cent originating in New Hampshire and 66 per cent originating in Massachusetts. Sewage effluents receiving no treatment account for 92 per cent of the total coliform bacteria in the stream.

Nashua and Hudson, New Hampshire, contributed over 98 per cent of the coliform bacteria at the New Hampshire-Massachusetts state line during warm low-flow periods. However, with colder water temperatures and increased flows in the autumn, the Nashua-Hudson portion at the state line was reduced to 50 per cent; Manchester, New Hampshire, was responsible for 25 per cent of the total; and other upstream communities were responsible for 25 per cent. Of the bacteria originating from upstream communities and reaching Newburyport, Massachusetts, 51.4 per cent emanated from the Lawrence region, 17.1 per cent from the Haverhill region, 31.4 per cent from the Amesbury area, and 0.1 per cent from the remaining upstream communities.

Coliform densities as high as 9,200,000 per 100 milliliters (ml) were found in the Merrimack River. This value, found below Lawrence, is 1,850 times the recommended maximum value of 5,000 per 100 ml. (One hundred milliliters of water is slightly less than one-half cup.) This excessive bacterial pollution presents a health hazard to all who come in contact with the water.

Disease-producing bacteria of the genus Salmonella were consistently recovered from the Merrimack in both New Hampshire and Massachusetts, indicating that ingestion of any water from the Merrimack River before it is treated or of produce from truck farms using untreated river water for irrigation is a definite health hazard. Salmonellae were isolated during every test made at the Lowell and Lawrence, Massachusetts, water intakes. Typhoid fever, gastroenteritis, and diarrhea are a few of the many diseases of man caused by these bacteria.

Sewage and industrial wastes presently discharged to the basin have an estimated biochemical oxygen demand (BOD) equivalent to that in the untreated sewage of 1,422,000 persons, of which 693,000 population equivalents are discharged in New Hampshire. BOD is a measure of the ability of a waste to deplete the dissolved oxygen resource of a stream.

Serious depletion of the dissolved oxygen content of the Merrimack River occurred during the study period. For the months of June, July, August, and September of 1964 and 1965, minimum dissolved oxygen from Manchester to Newburyport was less than 2.0 ppm at every station; zero values were found below Haverhill. At no point upstream of Manchester was the minimum value in excess of 5.0 ppm. A value of 5.0 ppm for at least 16 hours a day is one requirement of the New England Interstate Water Pollution Control Commission for Class C waters, C being the class of water considered acceptable for recreational boating, fish habitat, and industrial water supply but not for swimming or drinking under normal conditions. Using BOD as an indicator, the most polluted reach of the Merrimack River was between Lawrence and Haverhill, Massachusetts.

BOD crossing the state line from New Hampshire into Massachusetts amounted to 28,800 pounds per day. This is equivalent to the BOD of raw sewage from 169,000 persons. As a result of the reduction in dissolved oxygen, fish, fish food organisms, and other desirable forms of aquatic life are destroyed. In addition, when the dissolved oxygen content of the river is sufficiently low, obnoxious gases are given off by the stream, forcing unsightly clumps of sludge to rise to the surface.

Biological stream studies showed that, with few exceptions, the entire length of the Merrimack River is grossly polluted from Franklin, New Hampshire, to its mouth at Newburyport, Massachusetts. Those desirable benthic organisms sensitive 'n their response to pollution were absent in the lower 57 miles of the Merrimack River. In only four areas did the river recover enough from its despoiled condition to permit a small number of sensitive organisms to exist before additional wastes reduced the quality of the river.

Serious pollution exists in the North Nashua River from the outfall of the Weyerhaeuser Paper Company, Fitchburg, Massachusetts, to the confluence of the north and south branches of the Nashua River at Lancaster, Massachusetts; in the Nashua River from Lancaster to the mouth of the Nashua River in New Hampshire; in the Squannacook River below the dam at Vose Village; and in the South Branch Nashua River below Clinton, Massachusetts. This pollution affects present and potential water uses.

Discharges from paper mills result in suspended solids, organic matter causing biochemical oxygen demand, and materials causing apparent color in the stream. By far the largest loadings emanate from the three paper industries of Fitchburg, Massachusetts. Excessive bacterial densities, suspended solids, nutrients, and organic matter are the result of inadequate sewage treatment, particularly at Fitchburg and Leominster, Massachusetts.

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92 per cent come from the paper mills. It is estimated that 17 million cubic feet of sediments have accumulated in Pepperell Pond alone.

Bacteria equivalent to those in the raw sewage of approximately 24,000 persons are discharged to the Nashua River Basin at present. Fitchburg and Leominster, Massachusetts, contribute 90 per cent of the total. The coliform bacteria in the North Nashua River were as high as 680 times the recommended maximum value of 5,000 per 100 ml for this stream. Disease-causing bacteria were isolated in both the North Nashua and the South Branch Nashua Rivers.

Sewage and industrial wastes presently discharged to the Nashua River Basin have an estimated biochemical oxygen demand population equivalent of 178,000, of which the paper industries contribute 76 per cent of the total. As a result of the reduction in dissolved oxygen, fish, fish food organisms, and other desirable aquatic life are destroyed, and obnoxious odors are given off by the stream.

Nutrients discharged to the Nashua River Basin result in excessive densities of algae and other aquatic plants, creating a nuisance. These plants may die and decompose, causing unsightly conditions, obnoxious odors, and depletion of dissolved oxygen.

Serious pollution exists in the Pemigewasset River from the confluence with the East Branch Pemigewasset River in Lincoln, New Hampshire, to the confluence of the Winnipesaukee River in Franklin, New Hampshire, due to the discharge of sewage and industrial wastes in the basin.

Suspended solids discharged to the Pemigewasset River watershed are equivalent to those in the raw sewage of 287,500 persons, of which over

98 per cent emanate from industrial plants. These solids result in sludge deposits, especially in the impoundment behind Ayers Island Dam. Hydrogen sulfide, resulting from sludge deposits behind this dam, caused thousands of dollars of damage to houses in Bristol, New Hampshire, on August 18, 1965, and on August 23, 1966, by discoloring the paint on the houses.

Sulfite waste liquor, released to the Pemigewasset River by the Franconia Paper Corporation, not only creates an enormous oxygen demand but also contains lignin sulfonates which persist as the waters flow into Massachusetts. As a result of the sulfite waste liquor, the river is discolored, adding to the water treatment costs at Lowell and Lawrence, Massachusetts.

Restricted recreational use of the Merrimack and its tributaries due to their polluted conditions alone caused an estimated loss of $21,300,000 in 1964. There is presently a very limited amount of fishing in the basin, but the U. S. Fish and Wildlife Service has expressed interest in reintroducing salmon and other anadromous fish to the streams once the pollution has been abated.

In 1964 the value of the soft-shell clam harvest amounted to only $14,000 of a potential $1,000,000. Discharges to the Merrimack River estuary from existing sewage treatment plants significantly contribute to the bacterial densities near the shellfish growing areas.

An even greater loss can be attributed to decreased property values and the resulting decrease in the tax revenues caused by the polluted condition of the Merrimack River and its tributaries. In 1964 these losses to communities in the basin amounted to about $14,600,000.

It is estimated that between $37,000,000 and $70,000,000 is being lost annually as a result of pollution in the Merrimack River Basin.

Although the Merrimack River is now used for industrial process water, cooling water, and for hydroelectric power, sand filters and other treatment methods are often employed at the industry's expense to pre-condition the water before it can be used. An increase in industrial development could be expected once the basin communities can offer improved water quality.

The Merrimack is also used as a municipal water supply for Lowell and Lawrence, Massachusetts. As the population in the basin increases, more and more communities will be turning to the Merrimack to meet their water needs because it is the only water supply of sufficient quantity to meet the demand. Eight basin communities have already expressed interest in the use of the river. Well-designed and efficient sewage treatment plants will be necessary to ensure adequate water quality.

Sewage and industrial wastes continue to be discharged to the Merrimack River and its tributaries in New Hampshire, causing pollution which endangers the health or welfare of persons in Massachusetts; the sewage and industrial wastes discharged to the Merrimack River and its tributaries in Massachusetts cause pollution which endangers the health or welfare of persons in New Hampshire and Massachusetts. Therefore, this pollution is subject to abatement under the provisions of the Federal Water Pollution Control Act (33 U. S. C. 466 et seq.).

INTRODUCTION

In accordance with the written request to the Secretary of Health, Education, and Welfare from the Honorable Endicott Peabody, former Governor of Massachusetts, dated February 12, 1963, and on the basis of reports, surveys, or studies, the Secretary of Health, Education, and Welfare, on September 23, 1963, called a conference under the provisions of the Federal Water Pollution Control Act (33 U. S. C. 466 et seq.) in the matter of pollution of the interstate waters of the Merrimack and Nashua Rivers and their tributaries (Massachusetts-New Hampshire) and the intrastate portions of those waters within the State of Massachusetts. The conference was held February 11, 1964, in Faneuil Hall, Boston, Massachusetts. Pollution sources and the effects of their discharges on water quality were described at the conference.

In February, 1964, the U. S. Department of Health, Education, and Welfare established the Merrimack River Project to study the Merrimack River Basin. The basic objectives were twofold:

1. Evaluation of the adequacy of the pollution abatement measures proposed for the Merrimack River within Massachusetts.
2. Development of adequate data on the water quality of the Merrimack River and its tributaries. Waters in both New Hampshire and Massachusetts were to be studied.

Headquarters for the Project were established at the Lawrence Experiment Station of the Commonwealth of Massachusetts, Lawrence, Massachusetts. The Project became operational July 1, 1964.

During the first year of operation, efforts were concentrated primarily in the Massachusetts section of the Merrimack River. Second year studies were mainly of the New Hampshire sections involving suspected interstate pollution and of the Nashua River.

STREAM STUDIES -- PHYSICAL, CHEMICAL, AND BACTERIOLOGICAL

Study Area

The Merrimack River Basin lies in central New England and extends from the White Mountains in New Hampshire southward into northeastern Massachusetts. Through New Hampshire, the river flows in a southerly direction. Upon entering Massachusetts, the river flows easterly for 45 miles, emptying into the Atlantic Ocean at Newburyport, Massachusetts. The lower 22 miles of the river are tidal. Lands drained by the Merrimack River consist of 5,010 square miles, of which 3,800 square miles are in New Hampshire, while 1,210 square miles lie in Massachusetts.

The 1960 population within the Merrimack River Basin is estimated to be 1,072,000, of which 747,000 are in Massachusetts and 325,000 are in New Hampshire. For the most part, the population centers are located along the Merrimack River.

Precipitation is distributed fairly uniformly throughout the year, and frequent but generally short periods of heavy precipitation are common in the basin. The southeastern part of the watershed, because of its proximity to the Atlantic Ocean, does not undergo the extremes of temperature and depth of snow found in New Hampshire at the higher elevations.

Pollution Sources

The Merrimack River is polluted by the discharge of raw and partially treated municipal and industrial wastes for most of its length in New Hampshire and Massachusetts. Every day more than 120 million gallons of waste water flow into the Merrimack River. The river is polluted bacteriologically, physically, and chemically. This polluted condition, which has been recognized since the turn of the century, will become progressively worse unless effective abatement action is taken immediately.

Coliform bacteria, equivalent to those in the raw sewage from 416,000 persons, are discharged to the Merrimack River Basin. Thirty-four per cent of the bacteria are discharged in New Hampshire; the remaining 66 per cent in Massachusetts. These bacteria are discharged by the New Hampshire communities of Allenstown, Boscawen, Concord, Derry, Franklin, Hooksett, Hudson, Manchester, Merrimack, Milford, Nashua, Pembroke, Salem, and Wilton and by the Massachusetts communities of Amesbury, Andover, Ayer, Billerica, Clinton, Concord, Dracut, Fitchburg, Groveland, Haverhill, Lancaster, Lawrence, Leominster, Lowell, Marlborough, Maynard, Methuen, Newburyport, North Andover, Pepperell, Salisbury, Shirley, and Westborough.

The suspended solids in the discharges to the study area are equivalent to those in the raw sewage of 1,653,000 persons. Seventy-two per cent of those solids originate in Massachusetts. Major sources of suspended solids in New Hampshire are the communities of Concord, Franklin, Manchester, Milford, and Nashua and the industries of Brezner Tanning Corp., Boscawen; Franconia Paper Corp., Lincoln; Granite State

Packing Co., Manchester; Granite State Tanning Co., Nashua; Hillsborough Mills, Wilton; Merrimack Leather Co., Merrimack; and Seal Tanning Co., Manchester. Massachusetts sources are the communities of Amesbury, Andover, Fitchburg, Haverhill, Lawrence, Leominster, Lowell, Methuen, Newburyport, and North Andover and the industries of Amesbury Fibre Corp., Amesbury; Commodore Foods, Inc., Lowell; Continental Can Co., Haverhill; Falulah Paper Co., Fitchburg; Foster Grant Co., Leominster; Fitchburg Paper Co., Fitchburg; Gilet Wool Scouring Corp., Chelmsford; Groton Leatherboard Co., Groton; H. E. Fletcher Co., Chelmsford; Hoyt & Worthen Tanning Corp., Haverhill; Jean-Allen Products Co., Lowell; Lawrence Wool Scouring Co., Lawrence; Lowell Rendering Co., Billerica; Mead Corp., Lawrence; Merrimack Paper Co., Lawrence; Oxford Paper Co., Lawrence; Southwell Combing Co., Chelmsford; St. Regis Paper Co., Pepperell; and Weyerhaeuser Paper Co., Fitchburg.

Sewage and industrial wastes presently discharged in the basin have an estimated biochemical oxygen demand equivalent to that in the untreated sewage of 1,422,000 persons, of which 693,000 population equivalents are discharged in New Hampshire. The following communities and industries are the major contributors of this BOD to the study area: In New Hampshire, the communities are Concord, Franklin, Manchester, Milford, and Nashua, and the industries are Foster Grant Co., Manchester; Franconia Paper Corp., Lincoln; Granite State Tanning Co., Nashua; Hillsborough Mills, Wilton; Merrimack Leather Co., Merrimack; MKM Knitting Mills, Inc., Manchester; M. Schwer Realty Co., Manchester; Seal Tanning Co., Manchester; Stephen Spinning Co., Manchester; and Waumbec Mills, Inc., Manchester.

In Massachusetts, the communities are Amesbury, Andover, Fitchburg, Haverhill, Lawrence, Leominster, Lowell, Methuen, Newburyport, North Andover, and Westborough, and the industries are Amesbury Fibre Corp., Amesbury; Commodore Foods, Inc., Lowell; Continental Can Co., Haverhill; Falulah Paper Co., Fitchburg; Fitchburg Paper Co., Fitchburg; Foster Grant Co., Leominster; Gilet Wool Scouring Corp., Chelmsford; Groton Leatherboard Co., Groton; Hollingsworth & Vose Co., Groton; Hoyt & Worthen Tanning Corp., Haverhill; Lawrence Wool Scouring Co., Lawrence; Lowell Rendering Co., Billerica; Mead Corp., Lawrence; Merrimack Paper Co., Lawrence; North Billerica Co., Billerica; Oxford Paper Co., Lawrence; Simonds Saw and Steel Co., Fitchburg; Southwell Combing Co., Chelmsford; St. Regis Paper Co., Pepperell; Suffolk Knitting Co., Lowell; Vertipile, Inc., Lowell; and Weyerhaeuser Paper Co., Fitchburg.

Discharges, other than bacteria, suspended solids, or oxygen demanding material, include color-producing waste discharges by the Franconia Paper Corp., Lincoln, New Hampshire; plating wastes probably containing copper and cyanide by the Sanders Associates, Nashua, New Hampshire; 2,380 pounds of grease per day by the Southwell Combing Co., Chelmsford, Massachusetts; 3,120 pounds of grease per day by the Gilet Wool Scouring Corp., Chelmsford, Massachusetts; periodic dumping of dye by the Roxbury Carpet Co., Framingham, Massachusetts; and 860 pounds of grease per day by the Lawrence Wool Scouring Company, Lawrence, Massachusetts.

Water Uses

The Merrimack River is the municipal water supply for Lowell and Lawrence, Massachusetts. As the population in the basin multiplies, an increasing number of communities will be turning to the Merrimack River to meet their water needs. Construction and efficient operation of well-designed sewage treatment plants will ensure adequate water quality to enable the municipalities and industries to utilize this abundant and inexpensive source of water.

Extensive use of the Merrimack River water is presently being made by the basin's industries. This use is limited mainly to flow-through applications, cooling water, power generation, and waste transport, with very little consumptive use. Sand filters and other treatment methods are often employed by industries to precondition the water. It would not be unreasonable to expect an increase in industrial development once the basin communities can offer improved water quality to both management and employees for process water and recreational use.

Merrimack River water is used for irrigation of truck crops along most of its banks, with a concentration of farms occurring between Manchester, New Hampshire, and Lawrence, Massachusetts. Following construction of adequate waste treatment facilities, irrigation water would have a lower bacterial density, resulting in a reduced health hazard.

Recreational use of the main stem Merrimack River is severely restricted due to the river's polluted condition. Fishing is limited by an environment unsuitable for game fish common to the area and by public abhorrence to fishing in water polluted with raw sewage and other waste materials. Proper control of this pollution would enable 10.5 million people within a day's drive of the river and thousands in the rest of the country to fully utilize the tremendous fish, wildlife, and recreational potential of the Merrimack River Basin.

For the basin area, a minimum estimate of the potential resources lost due to pollution is $37,000,000 for the year 1964. The income lost from various sources is:

Commercial Shellfish	$ 300,000
Recreational Visitor Income	21,300,000
Increased Property Value	9,100,000
Increased Tax Revenue	5,500,000
Miscellaneous	800,000
	$37,000,000

This annual loss may be as high as 60 to 70 million dollars or $65 per year for every man, woman, and child in the basin.

Effects of Pollution on Water Quality

Concentrated water quality studies in the Merrimack River Basin were conducted during July and August of 1964 and 1965. Other supplemental studies were made throughout the year. Pollution of the Merrimack River and its tributaries was evaluated primarily on the basis of coliform bacteria, dissolved oxygen, biochemical oxygen demand, and temperature. Time of travel data were obtained from Rhodamine B dye studies.

The temperature of the Merrimack River during the summer months averaged 73.4°F (23°C). There was only one significant source of thermal pollution, that being the Public Service Company of New Hampshire's power generating facilities at Bow, New Hampshire. A temperature increase of

5.4°F (3°C) was apparent below the discharge area. Facilities should be provided for cooling of the waste discharge, thereby preventing an excessive temperature build-up in the river.

Biochemical oxygen demand (BOD) crossing the state line from New Hampshire into Massachusetts amounted to 28,800 pounds per day during August, 1965. This is equivalent to the discharge of raw sewage from a city of 169,000 persons.

Substantial amounts of BOD are discharged by the industries and communities of Concord, Manchester, and Nashua, New Hampshire, and Lowell, Lawrence, and Haverhill, Massachusetts, causing serious reduction in the dissolved oxygen content of the Merrimack River during the summer months. In June, July, August, and September of 1964 and 1965, minimum dissolved oxygen from Manchester to Newburyport was less than 2.0 ppm at every station; zero values were found below Haverhill. At no point upstream of Manchester was the minimum value in excess of 5.0 ppm. A value of 5.0 ppm is considered by most state water pollution control agencies to be the minimum value to be maintained in order to provide for the maximum potential warm-water sport fish population. It is also one of the requirements for Class C water, as established by the New England Interstate Water Pollution Control Commission.

A depletion of the oxygen resource of a river will reduce or eliminate aquatic life which serves as food for fishes. The biological study of the Merrimack River shows that those benthic organisms sensitive in their response to pollution were absent in the lower 57 miles of the Merrimack River. In only four extremely short portions of the river, consisting of less than 15 miles out of the total river mileage of 116, did the river recover enough from its despoiled condition to permit a small number of sensitive organisms to exist.

With the exception of a short section of the river between Hooksett and Manchester, bacterial pollution presents a health hazard for all full body contact recreation, such as swimming and water skiing, from Franklin, New Hampshire, to Newburyport, Massachusetts. Below Manchester and Nashua, New Hampshire, and Lowell, Lawrence, and Haverhill, Massachusetts, coliform densities in excess of 1,000,000 per 100 ml were not uncommon, being found as high as 9,200,000 per 100 ml. Recommended limits of coliform densities for water contact sports range from 50 to 3,000 per 100 ml in various states.

Nashua and Hudson, New Hampshire, contributed over 98 per cent of the coliform bacteria crossing the New Hampshire-Massachusetts state line during warm, low-flow periods of the year. However, with colder water temperatures and increased flows in the autumn, the Nashua-Hudson portion at the state line was reduced to 50 per cent; Manchester, New Hampshire, was responsible for 25 per cent of the total; and other upstream communities were responsible for 25 per cent. The discharge of raw and partially treated sewage to the study area is a health hazard to the residents in the downstream communities as well as to the local population.

Vegetables that are ordinarily eaten without cooking are irrigated at several truck farms with water from the Merrimack River. Fecal coliforms were present on vegetables grown from farms irrigating with Merrimack River water in a significantly greater number of cases than on vegetables that were not irrigated with the river water.

While coliform bacteria densities indicate the magnitude of potential disease-producing organisms, detection of pathogenic Salmonella bacteria is positive proof of the presence of such organisms. Typhoid fever, gastroenteritis, and diarrhea are but a few of the many diseases of man caused by these bacteria. Salmonellae were consistently recovered from the Merrimack River in both New Hampshire and Massachusetts, indicating that ingestion of untreated Merrimack River water is a definite health hazard. Salmonella organisms were isolated during each test made at the Lowell and Lawrence water intakes. These disease-producing organisms were isolated from river water having a total coliform density as low as 180 per 100 ml.

The major contributors of coliform bacteria to the estuary are: the communities upstream of Newburyport and the two communities of Newburyport and Salisbury. Of the bacteria originating from upstream communities and reaching Newburyport, 51.4 per cent emanated from the Lawrence region, 17.1 per cent from the Haverhill region, and 31.4 per cent from the Amesbury area. Discharges into the estuary from existing treatment facilities in Newburyport and Salisbury significantly increase the bacterial densities near the shellfish growing areas. If the potential one-million-dollar annual shellfish harvest is to be a reality, the discharge of treated sewage in the greater Lawrence, Haverhill, and Amesbury areas will need constantly and efficiently operating disinfection facilities. In addition, the communities of Newburyport and Salisbury will need to discharge their wastes, adequately treated, to the Atlantic Ocean instead of to the estuary.

Phosphate and nitrogen concentrations in the Merrimack River are far in excess of the amount needed to produce nuisance algal blooms. In order to reduce taste and odor problems with municipal water supplies taken from the river and to improve the esthetic quality of the water, the concentration of these nutrients should be reduced.

Severe to moderate pollution exists in several tributaries of the Merrimack River. These include the Souhegan River near Wilton and Milford, New Hampshire; Beaver Brook near Derry, New Hampshire, and Lowell, Massachusetts; the Assabet River below Westborough, Hudson, and Maynard, Massachusetts; Hop Brook (a Sudbury River tributary) below Marlborough, Massachusetts; the Concord River below Billerica and in Lowell, Massachusetts; the Spicket River in Salem, New Hampshire, and Methuen and Lawrence, Massachusetts; the Shawsheen River below Bedford and in Andover, Massachusetts; and the Powwow River below Amesbury, Massachusetts.

Gross oxygen production from photosynthesis in the Merrimack River was between 0.8 and 2.0 ppm per day during the summers of 1964 and 1965. These values were obtained by the use of light and dark bottle tests between Manchester, New Hampshire, and Newburyport, Massachusetts. The rate of oxygen production on cloudy days was found to be approximately one-tenth the value found on sunny days.

In the 67-mile reach of the Merrimack River between Manchester and Newburyport, there are approximately 16,900,000 cubic feet of settled solid material, 7,900,000 of which are located between Lowell and Lawrence, and 7,800,000 between Haverhill and Newburyport. The oxygen demand of these benthal deposits in the overflowing waters ranged from 0.2 to 1.0 ppm per day.

Oxygen balance studies were carried out, and the variables affecting the oxygen sag curves were obtained for each of the six reaches below Manchester, New Hampshire. These variables were adjusted to reflect the future conditions in 1985 when a secondary waste treatment program for the Merrimack River would be in effect. Dissolved oxygen calculations for the 1985 conditions indicated that oxygen levels of 75 per cent of saturation (Class B water as established by the New England Interstate Water Pollution Control Commission) can be met from Franklin, New Hampshire, to Lawrence, Massachusetts, and from Amesbury, Massachusetts, to the Atlantic Ocean.

Existing and potential future water uses in the Merrimack River indicate that it will be used for a variety of purposes. Consideration was given to water quality limits for various constituents that would affect the suitability of the stream for each water use. In order to decrease the biochemical oxygen demand and bacteria in the wastes to be discharged to the Merrimack River, to provide an effluent more esthetically acceptable to the public, to assure the existing and future desirable uses of the river, and to protect the health and welfare of the public, it will be necessary to provide secondary waste treatment or equivalent, with disinfection, for all waste discharges. If the recommendations of this report are followed, water quality of sufficient purity to accommodate the various water uses will be attained.

STREAM STUDIES -- BIOLOGICAL

The biological studies show that, with few exceptions, the Merrimack River is grossly polluted from Franklin, New Hampshire, to its mouth at Newburyport, Massachusetts.

Benthic organisms sensitive to pollution were absent from the samples taken in the lower 57 miles of the Merrimack River. In only four extremely short portions of the river, consisting of less than 15 miles out of the total river mileage of 116, did the river recover enough from its despoiled condition to permit a small number of sensitive organisms to exist before additional wastes reduced the quality of the river. These four areas were: four miles below the confluence of the Pemigewasset and Winnipesaukee Rivers; above Concord, New Hampshire; in the reservoir behind Amoskeag Dam; and just above the Nashua River confluence.

Organisms intermediate in their response to pollution were predominant from below Franklin, New Hampshire, to the confluence of the Contoocook River. Additional waste discharges between the Contoocook River and the Suncook River resulted in an increase in the proportion of pollution-tolerant forms. Between Hooksett and Manchester, New Hampshire, the majority of bottom organisms again were of the types intermediate in their resistance to pollution. From Manchester to Amesbury, Massachusetts, a distance of 66 miles, pollution-tolerant organisms constituted the entire benthic population or the majority of the forms found.

The number of species found in the Merrimack River was far below the levels desired in a benthic community. Pollution-sensitive benthic fauna, such as mayflies, stoneflies, and certain beetles, were not found in the river from Manchester, New Hampshire, to the Atlantic Ocean.

A number of tributaries were sampled near their confluences with the Merrimack River. Results show that all of the sampled areas were polluted. In most cases, wastes were discharged into the lower part of the tributary and affected the bottom fauna.

A biological survey was carried out on the lower Souhegan River, a tributary which discharges into the Merrimack River 12.5 miles upstream of the New Hampshire-Massachusetts state line. Between Wilton and Milford, New Hampshire, the Souhegan deteriorated considerably, with pollution-tolerant leeches and sludgeworms making up most of the benthic fauna. This polluted condition of the river continued for several miles downstream of Milford. From a biological standpoint, the river was moderately polluted from Wilton, New Hampshire, to its confluence with the Merrimack River, a distance of 20 miles.

A productivity study of the Merrimack River was conducted between Manchester, New Hampshire, and Lowell, Massachusetts, that reflected a relative increase in productivity as the river flowed downstream.

The surface water of the Merrimack River at the entrance to the Essex Canal in Lawrence was monitored periodically for phytoplankton and zooplankton from April through October, 1965. Most of the kinds of phytoplankton found were tolerant of pollution.

PILOT PLANT STUDY OF BENTHAL OXYGEN DEMAND

The areal oxygen demand of bottom sediments taken from the Merrimack River in Massachusetts was determined by a small pilot plant. Parameters in the benthic rate equation were evaluated on the basis of the data obtained, and the effect of sediment depth on the benthic rate constant, k_4, was studied.

The value of the benthic rate constant, k_4, varies with the age and depth of the deposit. A marked decrease of k_4 with increase in sediment depth occurred between 1.5 and 10 cm. Above 15 cm no significant decrease in k_4 was observed.

Only the upper 15 cm of sediment had any significant effect on the areal oxygen demand. The observed data were closely approximated by the equation $L_d = L_{d_o} \cdot 10^{-k_4 t}$ at all sediment depths except the 1.5 cm depth.

Nitrification was believed to play a role in the oxygen demand of the sediments and was especially significant in the shallow depths studied.

NASHUA RIVER

Serious pollution exists in the North Nashua River from the outfall of the Weyerhaeuser Paper Company, Fitchburg, Massachusetts, to the confluence of the north and south branches of the Nashua River at Lancaster, Massachusetts; in the Nashua River from Lancaster to the mouth of the Nashua River in New Hampshire; in the Squannacook River below the dam at Vose Village; and in the South Branch Nashua River below Clinton, Massachusetts. This pollution affects present and potential water uses.

Discharges from paper mills result in suspended solids, organic matter causing biochemical oxygen demand, and materials causing apparent color in the stream. By far the largest loadings emanate from the three paper industries of Fitchburg, Massachusetts. Inadequate sewage treatment, particularly at Fitchburg and Leominster, Massachusetts, contributes to the problem by causing excessive bacterial densities, suspended solids, nutrients, and organic matter causing biochemical oxygen demand. Plastics and metal fabrication industries also add suspended solids and materials that cause biochemical oxygen demand.

Bacteria equivalent to those in the raw sewage of approximately 24,000 persons are discharged to the streams at present. Fitchburg and Leominster, Massachusetts, contribute 90 per cent of the total. The coliform bacteria in the North Nashua River were as high as 680 times the recommended maximum value of 5,000 per 100 ml for this stream. Pathogenic bacteria were isolated in both the North Nashua and South Branch Nashua Rivers.

Discharges of suspended solids create a severe problem in the Nashua River. These materials cause deep sludge deposits which deplete the stream oxygen supply, produce offensive odors, and reduce or eliminate aquatic life which serves as food for fishes. The suspended matter also makes these once attractive waters appear turbid. Suspended solids discharged to the Nashua River Basin are equivalent to those in the raw sewage of 556,000 persons. Of these nearly 92 per cent come from the paper mills. It was estimated that 17 million cubic feet of sediments have accumulated in Pepperell Pond alone.

Sewage and industrial wastes presently discharged have an estimated biochemical oxygen demand population equivalent of 178,000, of which the paper industries contribute 76 per cent. As a result of the reduction in dissolved oxygen, fish, fish food organisms, and other desirable forms of aquatic life are destroyed. In addition, when dissolved oxygen is reduced to zero, obnoxious odors are given off by the stream.

Nutrients discharged to the Nashua River Basin result in excessive densities of algae and other aquatic plants, creating a nuisance. These plants may die and decompose, causing unsightly conditions, obnoxious odors, and depletion of dissolved oxygen. In addition, in the absence of sunlight, the algal respiration depresses the dissolved oxygen to low levels--at times to zero. Estimates based on sewered population and stream analyses indicate that 128,000 population equivalents of orthophosphates are discharged to the Nashua River. Phosphates are key nutrients which are readily available for the growth of algae and other aquatic plants.

As a result of the severely polluted condition of the Nashua River, the people who live in the towns bordering the river in New Hampshire and Massachusetts petitioned the governors of the two states to take immediate abatement action. The people demanded that the river be restored to a high state of water quality.

The Nashua River system has been classified for future highest use by the state and interstate agencies. The classification of the North Nashua and Nashua Rivers was set at Class C. However, in Massachusetts the Nashua River was assigned the coliform limitation established for Class B water. Class C waters would be suitable for recreational boating and fish and wildlife usage, while the coliform limit on the Nashua River would permit recreational bathing. These classifications would permit the recreational developments desired by most of the citizens of the area and would probably provide water quality adequate for industry.

In addition to many other uses, the Nashua River can be used at the Fort Devens Military Reservation for training exercises involving rivers and for recreation when pollution is controlled. The sections of the river forming the post boundary could be used for public recreation, while the sections entirely within the reservation could be used for recreation either by post personnel or by the public by permit.

PEMIGEWASSET RIVER

Serious pollution exists in the Pemigewasset River from the confluence with the East Branch Pemigewasset River in Lincoln, New Hampshire, to the confluence of the Winnipesaukee River in Franklin, New Hampshire, due to the discharge of sewage and industrial wastes in the basin. Effects of these discharges persist all the way into Massachusetts.

Discharges of raw sewage from several towns result in excessive densities of bacteria and make much of the Pemigewasset River unsuitable for recreational purposes, even where only limited body contact is involved. About 29 of the 35 miles of stream between North Woodstock and New Hampton are above the 5,000 coliforms per 100 ml limit usually recommended for recreational uses. Some of these bacteria may be pathogens which can infect persons ingesting the water.

Suspended solids discharged to the Pemigewasset River watershed are equivalent to those in the raw sewage of 287,500 persons, of which over 98 per cent emanate from industrial plants. These solids result in sludge deposits, especially in the impoundment behind Ayers Island Dam. The sludge reduces or eliminates aquatic life which serves as food for fishes, depletes the stream oxygen supply, and produces offensive odors. Hydrogen sulfide, resulting from sludge deposits behind Ayers Island Dam, caused thousands of dollars of damage to houses in Bristol, New Hampshire, on August 18, 1965, and on August 23, 1966, by discoloring the paint on the houses.

Dissolved oxygen concentrations in the Pemigewasset River are depressed by the discharge of organic materials which decompose in the river and exert an oxygen demand. Minimum dissolved oxygen concentrations were below desirable levels from the East Branch Pemigewasset River in Lincoln, New Hampshire, to the mouth of the Pemigewasset in Franklin. The Franconia Paper Corporation is responsible for 94.5 per cent of the oxygen demand in the Pemigewasset River Basin, with a discharge having an oxygen demand equivalent to that of the raw sewage of 400,000 persons. Low dissolved oxygen concentrations destroy fish, fish food organisms, and other desirable aquatic life.

Sulfite waste liquor, released to the Pemigewasset River by the Franconia Paper Corporation, not only creates an enormous oxygen demand due primarily to the wood sugars but also contains lignin sulfonates which persist as the waters flow into Massachusetts. Pollution from the Franconia Paper Corporation was included in the first session of the conference. As a result of the sulfite waste liquor, the river is discolored, adding to the water treatment costs at Lowell and Lawrence, Massachusetts.

The Pemigewasset River is in the heart of prime recreational area of New Hampshire. However, as a result of pollution, recreational use of the Pemigewasset is reduced or destroyed, impeding the economic growth of the area downstream of the pollutional discharges.

RECOMMENDATIONS

Many suggestions of the Merrimack River Project concerning water quality criteria and stream classification have already been implemented by the two Basin states in the process of adopting water quality standards. Still others are being considered by the New England Interstate Water Pollution Control Commission for the region as a whole as well as the Basin waters.

Implementation and construction schedules submitted by the states of New Hampshire and Massachusetts and approved by the Secretary of the Interior, as required by the Federal Water Pollution Control Act, as amended, shall be followed for the Merrimack River Basin. Implementation and construction schedules for sources of pollution on intrastate portions of the Merrimack River Basin in Massachusetts shall be in accordance with state and local requirements so as to meet the stream classifications.

It is recommended that the implementation program for the following New Hampshire communities in the Merrimack River Basin, that did not receive approval by the Secretary, be as follows:

	Manchester	Concord	Plymouth
Type of treatment	Secondary	Secondary	Secondary
Final plans and specifications	Dec. 1970	May 1969	July 1971
Start construction	Apr. 1972	Apr. 1971	July 1973
Complete construction	Dec. 1974	Apr. 1973	Dec. 1974

Consideration shall be given in the water pollution control program, as necessary, to the following:

1. Sewerage systems with collection sewers terminating in adequate treatment facilities shall be provided in those areas along the stream where sewers do not now exist and where homes discharge either raw wastes or septic tank effluent to the watercourse and where local treatment facilities will not suffice.

2. All new construction of sewer lines and revisions to existing systems shall provide for the separation of storm runoff and sewage.

3. All new and existing waste treatment facilities shall be designed or modified, if possible, to prevent bypassing of untreated wastes during maintenance and renovation operations and power failures.

4. All municipal and industrial wastes in the Merrimack River Basin are to receive a minimum of secondary treatment or equivalent. All effluents containing domestic wastes are to receive adequate disinfection. Maximum removal of nutrients, including phosphates, by the most effective available means is to be provided, as necessary, to meet stream classifications.

5. All industries and municipalities in the area discharging waste material to the public waters shall maintain an inventory of critical waste treatment parts and supplies on the plant premises so that a minimum delay in effective waste treatment will result when replacement or repair is necessary.

6. Consideration shall be given for 24-hour supervised operation of all sewage treatment plants.

7. Provisions shall be made to allow sampling of the final effluent prior to discharge.

8. No backwater or eddies shall exist near the outfall that would hinder mixing. The location of the outfall should be such as to enhance mixing of the treatment plant effluent.

9. Operation of dams in the Merrimack River Basin should be regulated by the appropriate agency so that certain adequate flows are released at all times.

10. All water treatment plants shall dispose of spent activated carbon and settled solids by means other than to the stream.

11. Facilities to accept septic tank truck discharges are to be provided at sewage treatment plants or other approved areas.

12. There shall be no discharges from septic tank cleaning operations directly to the waters of the Basin.

13. All marine conveyances equipped with marine toilets operating upon the Basin waters shall use a holding tank or other approved pollution control device.

14. The appropriate agency should prohibit garbage or refuse (including automobile bodies and other unsightly debris) from being dumped along the banks of the river, and no open dumps should be allowed on the flood plain. Material in present dump sites along the river banks shall be removed and the appearance of the bank restored to an esthetically acceptable condition. Present open dumps on the flood plain should be converted to sanitary landfills operated acceptably to the appropriate state agencies.

15. In the shellfish growing areas near the mouth of the Merrimack River, the requirements of the National Shellfish Sanitation Program are to be met in order to permit reopening of the maximum number of those areas presently closed to the harvesting of shellfish.

16. Consideration should be given by the City of Newburyport and the Town of Salisbury, Massachusetts, to developing an engineering report which would include the relative merits of:

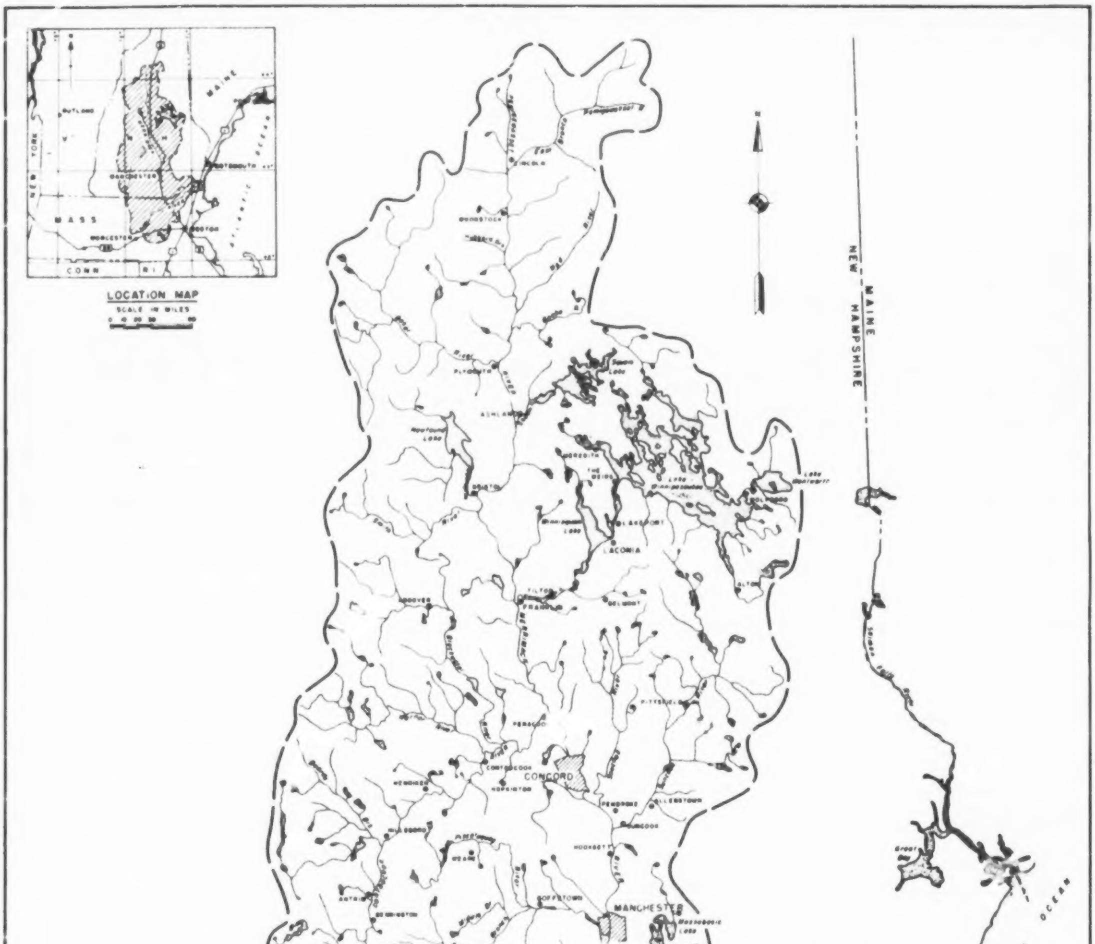
    a. Treatment and joint discharge to the Atlantic Ocean;

    b. Individual discharges to the Atlantic Ocean;

    c. Joint treatment and discharge to the Merrimack estuary; and

    d. Individual discharges to the Merrimack estuary.

    In all cases, the report shall include the relative economic values of the estuarine resources.


LOCATION MAP
SCALE IN MILES
MAINE
MASS
CONN
R.I.
BOSTON
MAINE
NEW HAMPSHIRE
ASHLAND
PLYMOUTH
MEREDITH
LACONIA
FRANKLIN
CONCORD
PEMBROKE
HOOKSETT
MANCHESTER
GOFFSTOWN
BEDFORD
LONDONDERRY
DERRY
PETERBOROUGH
JAFFREY
MILFORD
NASHUA
HUDSON
SALEM
HAVERHILL
LAWRENCE
ANDOVER
NEWBURYPORT
MERRIMACK RIVER
NEW HAMPSHIRE
MASSACHUSETTS
LOWELL
CHELMSFORD
BILLERICA
FITCHBURG
LEOMINSTER
CLINTON
MAYNARD
CONCORD
SHREWSBURY
WESTBORO
BOSTON
ATLANTIC OCEAN
MASSACHUSETTS BAY
SCALE IN MILES

MERRIMACK RIVER BASIN

FIGURE 1

CHAIRMAN STEIN: Thank you, Mr. Pahren.

Are there any comments or questions:

MR. McMAHON: Yes.

CHAIRMAN STEIN: Mr. McMahon has one.

MR. McMAHON: Mr. Chairman, first I would like to commend Mr. Pahren and Mr. Klashman and Mr. Stein on the preparation of what I call a substantial effort over the past two years, and I am not just referring to volume 1, but also the backup volumes which will be used for technical information by other agencies.

I would say that we also have one comment in the recommendations. Essentially, all of the recommendations that are in volume 1 of this report, we feel, are inherent within our particular water pollution control program in Massachusetts or as vested in the appropriate agencies in order to satisfy all of these recommendations.

My one exception would be No. 13, which states that all marine conveyances equipped with marine toilets operating upon the basin waters shall use a holding tank or other approved pollution control device.

At the present time we in Massachusetts do not have a Massachusetts approved pollution control law. We are interested in getting one, however. We have been working with the New England Interstate Water Pollution Control Commission and other States to come up with legislation that is compatible or equal to one State to another.

I am not saying this is not a good idea. It is an excellent idea. I am merely saying that at the present time Massachusetts does not have a boat pollution control law. I would expect that within a year or two or 18 months we will have.

CHAIRMAN STEIN: Mr. Pahren, do you have a comment on that or do you want to respond to it?

MR. PAHREN: No. I think that Mr. McMahon's comment that they do expect to have it in the law in 12 to 18 months is adequate.

CHAIRMAN STEIN: You might check on some of the experience we have had with the States in other areas.

For example, Lake Michigan, all four bordering States have adopted, at least in substance, uniform requirements. I think we have about achieved that with the five Lake Erie States.

Now, this is possibly for Mr. Peloquin or anyone else in the interstate agencies: You try in this area almost more than anyone else to get reasonable uniformity on requirements. For example, in the upper Mississippi River between Minnesota and Wisconsin we did not quite have that. What happened was boat owners did what came naturally. As you know, they do not like to stay in one place; they like to travel. When a man in one State would have what he thought was an adequately equipped boat and he would go across a State line, he suddenly found himself ticketed and had to pay a $25 or $50 fine. This did not rest too well with either State and certainly not the public.

I really believe the basic issue you must determine is whether you are going to go for holding tanks, as at the present time, or you are going to permit a macerator-chlorinator, as well, or in addition. In the Great Lakes States they pump from the holding tank, nothing else. In the upper Mississippi between Minnesota and Wisconsin it is split and this is what causes the problem.

I would suggest that the mechanics of the legislation have been developed in other areas, and I suggest that you look at these. This is a fairly direct legislative and regulatory procedure that has been worked out. All of these States have developed a pretty good law. However, I would hope, again, that the States can get together on this issue and come up with a uniform provision so that the sportsmen in the area can reasonably feel that if their boats meet the requirement in one State, they could take them to the waters of another State in the New England area and expect to have full acceptance of the device.

MR. PELOQUIN. I wonder if I could comment on this, Mr. Klashman?

MR. KLASHMAN. Yes.

MR. PELOQUIN. For the record, the New England Interstate Water Pollution Control Commision particularly has had this problem under study for the past year, and we also have had participating on this committee a member of the Federal Water Pollution Control Administration and the United States Public Health Service. We have discussed the recommendation of this committee to the Technical Advisory Board for holding tanks preferable and for the development of standard legislation, which would be applicable as a minimum to the six New England States, and, hopefully, considering either further range, preferably the East Coast because of the traffic along the

Coast, and to support Federal legislation and control of military and commercial vessels plying along the Coast.

At the present time we are beginning to develop standard legislation which we hope will be adopted by the Compact member States. This is under consideration.

MR. KLASHMAN. Mr. Stein, before Mr. Healy can say it, we want to say that we in the Region recognize that New Hampshire has actually been one of the forerunners in this handling of marine waste. Actually, New Hampshire has had the holding-tank law in effect for some time now. I think that some of the other States have copied from it out in the Midwest.

CHAIRMAN STEIN. Did you want to comment?

MR. HEALY. Yes, I would very briefly, because you have a long agenda and we want to get along.

I think New Hampshire ascribes generally to the comments Mr. Pahren has made in regard to the recommendations outlined in the summary report.

We do have some strong reservations about the dates concerning Manchester, Concord and Plymouth. This stems largely because of the status of the grant funds.

Our program of control, of necessity, has been based upon the amounts of Federal and State funds which we can anticipate over the next ten years. We have a 10-year program here, or we did have when we submitted it in the form of our water quality standards in compliance with the 1965 Act.

Now, the funds have not been forthcoming, as Representative Urie emphasized. We here will have to make some adjustments in our schedules. Either that, or there will have to be a very serious effort made to establish a prefinancing system here at State level, which would enable us to more nearly adhere to the original dates established by the Commission and by the Legislature in submitting our standards.

Now, if I could just add this thought on the boat pollution control aspect of our operation: We feel here, and have, as Mr. Klashman has indicated, that there must be a real strong effort in this area, and we have attempted to have one for the last several years by means of macerator-chlorinator devices. In our judgment, this has left results or brought about results which left something to be desired and we have now converted to the holding system method which we believe will be superior. In fact, a number of these units are now in use in the State.

Beginning January 1969, it will be manditory that all boat operators, pleasure craft included, plying New Hampshire waters will have to have a holding tank so as to receive and store the waste for on-shore disposal at convenient points around our lakes.

We applaud and endorse the effort at the New England Interstate level, because this will facilitate the control measures in this State.

Thank you.

CHAIRMAN STEIN. Thank you. I think, Mr. Healy, that is the trend.

Without wishing to prolong it and get into the technical part of this problem, I shall draw out one point for the consideration of the New England States on the boat ordinances. These boats can be put on trailers. We know they are used on lakes as well as rivers. Many of the States have come up with Mr. Healy's judgment on this -- they have had the same experience -- that the macerator-chlorinator has not quite proved satisfactory on lakes because whatever it does it does not remove the nutrients. You tend to get a rapid nutrification of those lakes. So this is something to keep in mind.

Are there any other questions or comments?

(No response.)

CHAIRMAN STEIN. If not, thank you very much.

Mr. Klashman.

MR. KLASHMAN. We may want to have Mr. Pahren recalled and ask him another question later, but we have none at this time.

CHAIRMAN STEIN. Proceed.

MR. KLASHMAN. I would like to now call on Mr. Thomas A. Schrader, Assistant Regional Director, Bureau of Sport Fisheries and Wildlife.

Mr. Schrader, do you have a statement?

MR. SCHRADER. Yes.

MR. KLASHMAN. If there are any other Federal agencies in the room that would like to make a statement I would very much appreciate it if they would make themselves known to me and let me know now.

STATEMENT OF THOMAS A. SCHRADER
ASSISTANT REGIONAL DIRECTOR
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES AND WILDLIFE
BOSTON, MASSACHUSETTS

(Representing Regional Director Richard E. Griffith)

MR. SCHRADER. Mr. Klashman, with your permission, I would like to leave the statement that I turned over to someone earlier to be entered into the record as written, but I am going to modify the statement that I read just slightly to take care of the situation that I find myself in, in that our Regional Director Mr. Griffith could not attend. Our Regional Director had intended to be here and present this statement in person until about 4 o'clock yesterday afternoon. So I am going to modify it just slightly to take care of the fact that I am reading the statement and the oral presentation. But I would like the record to show it as though Mr. Griffith read the statement.

My name is Thomas A. Schrader. I am Assistant Regional Director of the Northeast Region of the Bureau of Sport Fisheries and Wildlife, which, with the Bureau of Commercial Fisheries, makes up the United States Fish and Wildlife Service. By agreement with Regional Director John T. Gharrett, Bureau of Commercial Fisheries, the statement I am presenting represents our combined views.

We are pleased to have the opportunity to speak at this conference. Mr. Griffith's predecessor, and now Director of the Bureau of Sport Fisheries and Wildlife, John S. Gottschalk, said at the first Merrimack River conference in Boston in 1964, "Throughout the Nation, people are saying, '...let's do something about pollution!" I am pleased to report that we are making progress. One of the things we have learned, however, is that progress in pollution elimination is slow, due to the enormity of the problem and the tremendous expenses involved. We cannot resolve all the problems overnight.

Thomas Schrader

As our increasing human populations achieve more leisure time their demands for worthwhile activities, such as fishing and boating, increases. By the year 2000, we expect approximately 3,000,000 of the projected New England population of 17,000,000 people will fish. We will be hard pressed to provide fishing opportunity for these people. Cleanup of the polluted areas would provide many thousands of man-days use for fishing. It would also help to more evenly distribute fishing pressure on the available waters. If we are successful in solving the myriad problems facing fisheries management and can provide outstanding angling opportunities, we hope that a much higher percentage of our population will be encouraged to take advantage of fishing opportunities.

The potential of the Merrimack River for satisfying these demands is enormous. The ORRRC report "Sports Fishing Today and Tomorrow" estimates that the main stem alone could support at least 290,000 man-days of fishing each year. In addition, the river could support at least 290,000 man-days of fishing each year. In addition, the river could support several thousand man-days of hunting each year. The potential is magnified by the proximity of the river to urban areas. There are few other opportunities available to create new fishing and hunting areas where they are most needed.

Thomas Schrader

The Bureau of Sport Fisheries and Wildlife and the Bureau of Commerical Fisheries are vitally concerned with the various aspects of fish and wildlife conservation and development within the Merrimack Basin.

Our concern reflects both the specific and general interest of the Congress in the conservation of the Nation's fish and wildlife resources. The general policy of the Federal Government is expressed in these words quoted from the Fish and Wildlife Act of 1956, "The Congress hereby declares that the fish, shellfish and wildlife resources of the Nation make a material contribution to our Nation's economy and food supply, as well as a material contribution to the health, recreation, and well-being of our citizens; that such resources are a living renewable form of national wealth that is capable of being maintained and greatly increased with proper management; but equally capable of destruction if neglected or unwisely exploited; that such resources afford outdoor recreation throughout the Nation and provide employment, directly or indirectly, to a substantial number of citizens."

The restoration of anadromous fish and the full utilization of resident fish are needed to meet future demands. Adequate control of pollution is essential if we are to accomplish maximum fisheries utilization.

Thomas Schrader

In common with other agencies of the Department of the Interior, we are convinced that use of streams for waste disposal is a single-purpose use we can no longer afford. We welcome an opportunity to cooperate with any effort aimed at the restoration of New England rivers.

(prepared text of above-mentioned statement follows.)

U. S. Fish and Wildlife Service Interest in the Waters of the Merrimack River

Presented at the Second Conference
December 18, 1968
at
Concord, New Hampshire

My name is Richard E. Griffith. I am Director of the Northeast Region of the Bureau of Sport Fisheries and Wildlife, which, with the Bureau of Commercial Fisheries, makes up the U. S. Fish and Wildlife Service. By agreement with Regional Director John T. Gharrett, Bureau of Commercial Fisheries, the statement I am presenting represents our combined views.

We are pleased to have the opportunity to speak at this conference. My predecessor, and now Director of the Bureau of Sport Fisheries and Wildlife, John S. Gottschalk, said at the first Merrimack River conference in Boston in 1964, "Throughout the Nation, people are saying, '... let's do something about pollution!'" I am pleased to report that we are making progress. One of the things we have learned, however, is that progress in pollution elimination is slow, due to the enormity of the problem and the tremendous expenses involved. We cannot resolve all the problems overnight.

As our increasing human populations achieve more leisure time their demands for worthwhile activities, such as fishing and boating, increases. By the year 2000, we expect approximately 3,000,000 of the projected New England population of 17,000,000 people will fish. We will be hard pressed to provide fishing opportunity for these people. Cleanup of the polluted areas would provide many thousands of man-days use for fishing. It would also help to more evenly distribute fishing pressure on the available waters. If we are successful in solving the myriad problems facing fisheries management, and can provide outstanding angling opportunities, we hope that a much higher percentage of our population will be encouraged to take advantage of fishing opportunities.

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In common with other agencies of the Department of the Interior, we are convinced that use of streams for waste disposal is a single-purpose use we can no longer afford. We welcome an opportunity to cooperate with any effort aimed at the restoration of New England rivers.

CHAIRMAN STEIN. Thank you, Mr. Schrader.

Are there any comments or questions?

MR. KLASHMAN. Mr. Schrader, Mr. Pahren in his statement made reference to the fact that the Fish and Wildlife had expressed an interest in reintroducing salmon and other anadromous fish in the Merrimack and some of the other streams up here. I understand that you have done this or are doing some work on the Connecticut and Penobscot, I believe. Do you have any specific plans on the thoughts about this on the Merrimack?

MR. SCHRADER. I can add to this statement I delivered.

I would like to point out that I guess I am nearing the end of a rather long career in the field of conservation. I have been involved in fish and wildlife conservation for some 35 years, and one of the most exciting pieces of legislation, from my point of view, in this 35 years has been the Anadromous Fish Restoration Act which was enacted by the Congress three years ago. And this provided for a Federal cost-sharing program to assist the States in anadromous fish restoration projects and authorized the appropriation of money to carry out this program.

I can remember back in the middle 1930's attending conferences of conservationists where pollution was the subject of considerable discussion and the people generally were convinced that pollution abatement was absolutely essential to full utilization of our potential fish resources. The Federal Water Act, the Pollution Control Act, has, I think, opened up a tremendous opportunity to the restoration of fish in the waters of America; and in connection with the anadromous fish, which are important both to the commercial fishery and to the sport fishery, we have a mechanism now to go to work on the streams as a successful pollution abatement program is carried out.

There is no question that there is going to be needed other things done besides the pollution in order to restore the anadromous fish runs. The program has been under way for about three years now. We have had appropriations for three years; and, of course, the money that was appropriated each year by the Congress was put into use in those streams or areas where we had an immediate potential, and the Penobscot got, I would say, the lion's share of the money that was allocated throughout the Northeast.

Now, the Bureau has also made somewhat larger amounts of money available for anadromous fish restoration on the Connecticut River, and I would suspect, or I believe, that one of the reasons for the larger allocation for the Connecticut was due to the fact that the four States involved, plus our two Bureaus in the Fish and Wildlife Service, had gotten together and agreed on a program for the Connecticut River.

Now, we have made some money available to carry out restoration work on the Merrimack River, but I suspect that the amounts that could be made available on the Merrimack could be increased rather substantially if we had some sort of a joint plan for restoration that we could get ahead with.

I view the Merrimack as a river which historically had access at one time to anadromous fish. We think there is every reason in the world to believe that they can be restored. I am in hopes that very soon we can embark on a major program on the Merrimack River. We stand ready to join with the two States in making additional funds.

I perhaps might point out that this, of course, will depend upon the temper of the Congress. We will make more funds available if Congress appropriates more money for this program.

CHAIRMAN STEIN. Thank you, Mr. Schrader.

Any further comments?

(No response.)

CHAIRMAN STEIN. By the way, I would like to again emphasize what Mr. Schrader said. This is very clear to me.

Thomas Schrader

Let me first begin by quoting a Congressman from the South who has always said that he is shocked that New England does not take advantage of the water resources development that we have in other areas. As I see it from an economic impact, we have a problem here that other places in the country either because climate or other conditions have kind of ameliorated. That is, your recreation season is relatively short. It goes from the 4th of July to Labor Day and it is all over. You have the facilities - the motels, the filling stations, the restaurants. They are all here.

Now, when you are in a river basin situation, such as the Connecticut, the Merrimack or the Penobscot, you do not, of course, get the ski business in the wintertime. However, we know that if the fish are restored the amount of business you will get from the fishery business will extend this season materially and will very well do that before or after your peak loads. All you have to do is go out to the Pacific Northwest and see the kind of operation that they have up there.

It seems to me that you people have the facilities. You are all ready to go. If we can get this pollution cleaned up and restore these anadromous runs so that we will have a reasonably decent habitat for the fish in the

Merrimack River, and with the cooperation of the Fish and Wildlife Service and their counterparts in the States, we would have the same kind of experience that we have had in the Pacific Northwest. Possibly, we would have the same success as we have had with the introduction of Coho Salmon in Lake Michigan. Some of you may have seen this -- Coho Salmon were put into Lake Michigan as a method to control the alewives, which, as you know are a nuisance. However, that is not the issue now. The point is that the people in these areas around Lake Michigan now have salmon fever when the fishing season is opened, and it has opened a completely expanded industry to areas in times when they were not normally used for vacation facilities.

Now, I think the people in the Merrimack Valley and New England rivers have the same, same situation.

Let me emphasize this for one moment, because this is going to be the sort of problem which is not only pollution alone. The rivers have been dammed up and these fish stopped coming in. However, as we have shown in rivers in other areas, the Fish and Wildlife people have fish-passage devices that can get these fish over the dams, a lot higher dams than you have here.

The first step and prerequisite is to get these waters cleaned up, so that they can maintain the fish.

I am sure anyone could make a respectable argument to Congress for authorizing and making available these funds to put in these devices if it is going to do some good and pollution is not going to kill the fish. Clean water is what we first must have.

Any other comments?

(No response.)

CHAIRMAN STEIN. Thank you.

STATEMENT OF CHARLES D. LARSON
REGION I, SHELLFISH CONSULTANT
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
U. S. PUBLIC HEALTH SERVICE
BOSTON, MASSACHUSETTS

I am here representing the Consumer Protection and Environmental Health Service of the U. S. Public Health Service. We welcome the opportunity to speak in favor of the continuing efforts to abate the pollution of the Merrimack and Nashua Rivers.

On September 1, 1966, President Johnson approved an Interdepartmental agreement between the Department of Health, Education, and Welfare and the Department of Interior. This agreement sets forth the responsibilities of the two

Departments in the field of water pollution control. Under this agreement, the Surgeon General of the Public Health Service shall provide consultation, advice and assistance relative to the health aspect of water pollution. We are interested in safe drinking water, adequate and healthful water-based recreation, shellfish that are free from contamination, and crops that are not contaminated by polluted irrigation waters.

Since the Merrimack River is already used as a water supply and may be used by more communities in the future, and since pathogens were isolated from the river during the Public Health Service study of the river in 1965, we are interested in seeing the water quality improved to further protect the consuming public. The Merrimack is also used for irrigation and in its present condition this is a questionable practice.

The river is used in some areas for water contact recreation, but there are many areas that cannot be used at the present time. If the quality was improved, the river could provide some needed water-based recreation.

The Merrimack River estuary has a good soft clam population and a Massachusetts Department of Natural Resources Report[1] published in June 1965 estimates that there are 73,379 bushels of legal sized soft clams, and

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1. "A Study of the Marine Resources of the Merrimack River Estuary"; Jerome, W.C.; Chesmore, A.P.; Anderson, C.O.; and Grice, F.; Massachusetts Department of Natural R Resources, Division of Marine Fisheries, June 1965.

Charles D. Larson

28,011 bushels, just under legal size, in the estuary. The report indicates that under proper management these populations could be doubled. They indicate that at the then existing wholesale prices approximately $300,000 worth of clams could be harvested annually. With proper management this value might double or triple. The total impact on the economy would raise this figure even more. How much would depend on how the clams are used.

The Public Health Service has been active in the Field of Shellfish sanitation since 1925 when an outbreak of typhoid fever occurred and was attributed to the consumption of raw oysters taken from polluted waters. The state shellfish control agencies and the shellfish industry at that time requested the Public Health Service to aid them in developing a program of Shellfish Sanitation which would establish consumer confidence in this important food item.

From that beginning the present Shellfish Sanitation Branch of FDA has evolved. Presently the program is guided by three manuals, the first of which deals with surveying and classifying growing waters. There are four classifitations of growing waters, but the one that could apply to the Merrimack Estuary is the "Conditionally Approved" classification (The pages of the Manual describing these classifications are attached.)

Charles D. Larson

Before any closed areas in the Merrimack Estuary can be opened, the requirements of the National Shellfish Sanitation Program must be met. This would involve reduced pollution from upstream sources and efficient operation of the Newburyport sewage treatment plant. Even with efficient operation of the treatment, some area must remain closed near the outfall. Dye studies have indicated that the effluent of the treatment plant goes over the shellfish areas during ebb tide and therefore efficient administrative procedures must be established and used to insure the immediate closure of the conditional area if the treatment plant fails. The only way the whole estuary could be used would be to relocate the treatment plant outfall.

The goals of the National Shellfish Sanitation Program are: (1) the continued safe use of this natural resource (2) active encouragement of water quality programs which will preserve all possible coastal areas for this beneficial use. It is in keeping with this second goal, our interest in safe drinking water and healthful water-based recreation, that the Public Health Service supports the recommendations of the Federal Water Pollution Control Administration.

Attachment

3. Approved Areas.—Growing areas may be designated as *approved* when: (*a*) the sanitary survey indicates that pathogenic microorganisms, radionuclides, and/or harmful industrial wastes do not reach the area in dangerous concentration, and (*b*) this is verified by laboratory findings whenever the sanitary survey indicates the need. Shellfish may be taken from such areas for direct marketing.

Satisfactory compliance.—This item will be satisfied when the three following criteria are met:

a. The area is not so contaminated with fecal material that consumption of the shellfish might be hazardous, and

b. The area is not so contaminated with radionuclides or industrial wastes that consumption of the shellfish might be hazardous (see section C, item 7, regarding toxins in shellfish growing areas), and

c. The coliform median MPN of the water does not exceed 70 per 100 ml., and not more than 10 percent of the samples ordinarily exceed an MPN of 230 per 100 ml. for a 5-tube decimal dilution test (or 330 per 100 ml., where the 3-tube decimal dilution test is used) in those portions of the area most probably exposed to fecal contamination during the most unfavorable hydrographic and pollution conditions. (Note: This concentration might be exceeded if less than 8 million cubic feet of a coliform-free dilution water are available for each population equivalent (*coliform*) of sewage reaching the area). The foregoing limits need not be applied if it can be shown by detailed study that the coliforms are not of direct fecal origin and do not indicate a public health hazard (*19*) (*20*).[8]

Public-health explanation.—A review of epidemiological investigations of disease outbreaks attributable to the consumption of raw shellfish reveals that two general situations prevail[9] insofar as pollution of growing or storage areas are concerned.

(1) Gross sewage contamination of a growing or wet storage area. (A report of a 1910 outbreak of typhoid fever involving 41 persons notes that raw sewage from a city with a population of 30,000 was discharged only a few hundred feet away from clam beds and floats (*27*) (*28*). In 1947 a case of typhoid fever was attributed to clams harvested 200 yards from the outlet of a municipal sewage treatment plant (*29*). In the latter case, the coliform MPN of the harbor water exceeded 12,000 per 100 ml. and the area had been posted as closed to shellfish harvesting.)

(2) Chance contamination of a growing or wet storage area by fresh fecal material which may not be diffused throughout the entire area (*14*) (*16*) (*17*) (*19*) and therefore not readily detectable by ordinary bacteriological procedures. The possibility of chance contamination was noted by Dr. Gurion in his report on a 1902 typhoid outbreak, and who is quoted in Public Health Bulletin No. 86, as "there is a zone of pollution established by the mere fact of the existence of a populated city upon the banks of a stream or tidal estuary which makes the laying down of oysters and clams in these waters a pernicious custom if persisted in, because it renders these articles of food dangerous at times, and always suspicious". The 1956 outbreak of infectious hepatitis in Sweden (691 cases) attributed to oysters which were contaminated in a wet storage area is an example of such contamination (*16*). Similarly in 1939, 87 cases of typhoid were attributed to fecal contamination of a storage area by a typhoid carrier (*14*).

It is well established that shellfish from water having a median coliform MPN not exceeding 70 per 100 ml.[8] *and which is also protected against chance contamination with fecal material*, will not be involved in the spread of disease which can be attributed to initial contamination of the shellfish. This is not surprising since a water MPN of 70/100 ml. is equivalent to a dilution ratio of about 8 million cubic feet of coliform-free water per day for the fecal material from each person contributing sewage to the area. This tremendous volume of water is available in shellfish growing areas through

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[8] This MPN value is based on a typical ratio of coliforms to pathogens and would not be applicable to any situation in which an abnormally large number of pathogens might be present. Consideration must also be given to the possible presence of industrial or agricultural wastes in which there is an atypical coliform to pathogen ratio (*30*).

[9] There is a third general consideration in which shellfish may be contaminated through mishandling. This is not related to growing area sanitation and is considered in part II of this manual.

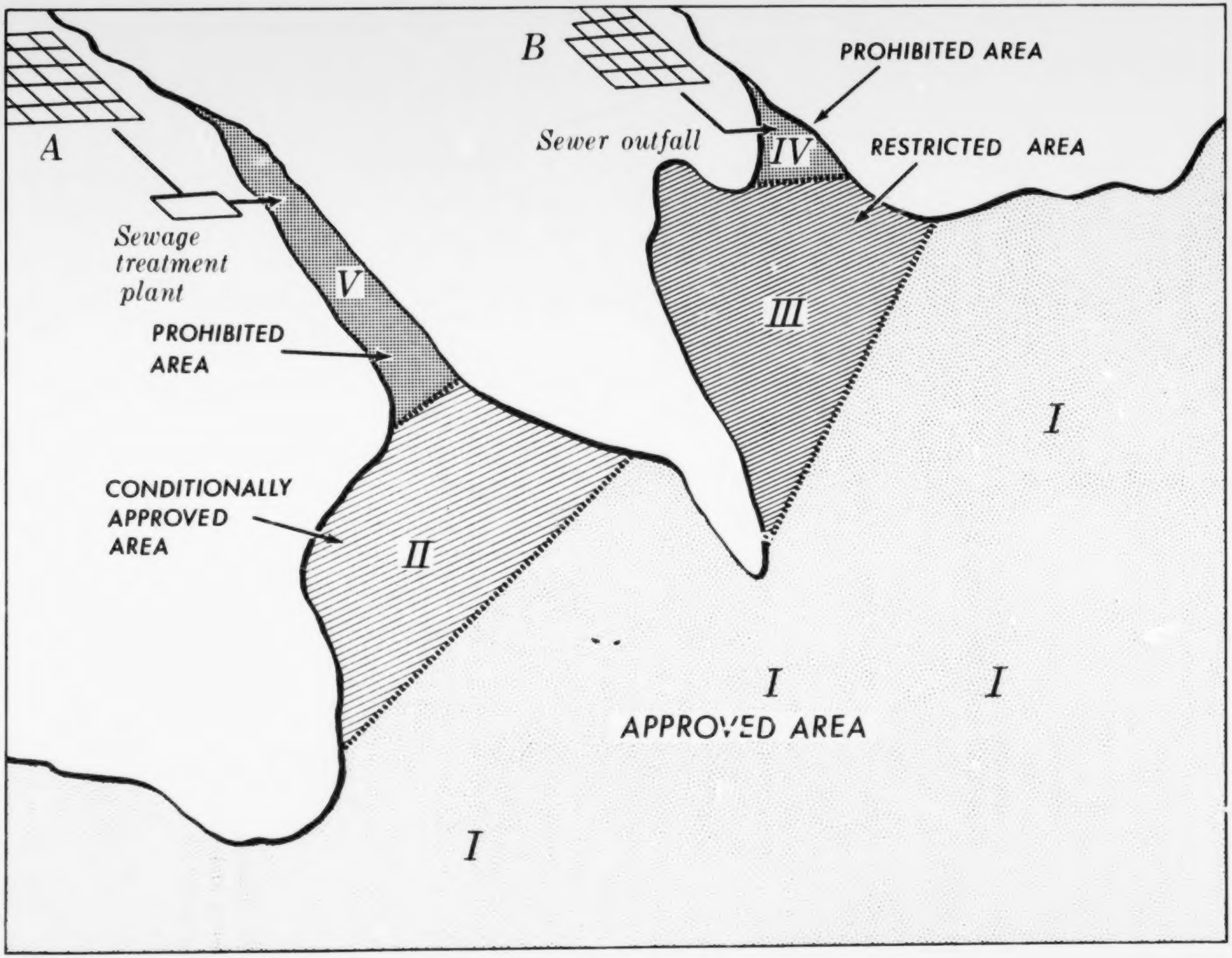
A
B
Sewage treatment plant
Sewer outfall
PROHIBITED AREA
RESTRICTED AREA
PROHIBITED AREA
CONDITIONALLY APPROVED AREA
APPROVED AREA
I
I
I
I
II
III
IV
V

Figure 1

tidal action which is constantly bringing unpolluted water into the area.[8]

Areas which are approved for direct market harvesting of shellfish which will be eaten raw must necessarily meet one general test; i.e., sewage reaching the growing area must be so treated, diluted, or aged that it will be of negligible public-health significance. This implies an element of time and distance to permit the mixing of the sewage or fecal material with the very large volume of diluting water and for a major portion of the microorganisms to die out. Studies of the natural die-off of microorganisms in an unfavorable marine environment have been summarized by Greenberg (*22*).

The effectiveness of sewage treatment processes must be considered in evaluating the sanitary quality of a growing area since the bacterial and viral content of the effluent will be determined by the degree of treatment which is obtained (*2*) (*73*) (*74*) (*75*). The results of bacteriological sampling must also be correlated with sewage treatment plant operation, and evaluated in terms of the minimum treatment which can be expected with a realization of the possibility of malfunctioning, overloading, or poor operation.

The presence of radionuclides in growing area waters may also have public-health significance since shellfish, along with other marine organisms, have the ability to concentrate such materials (*31*) (*32*) (*33*) (*34*). The degree to which radioisotopes will be concentrated depends upon the species of shellfish and the specific radioisotope. For example, it has been reported that the Eastern oyster has a concentration factor of 17,000 for Zn^{65} whereas the concentration factor in soft tissues for Sr^{89} is approximately unity (*31*) (*33*). The distribution of the radioisotope in the shellfish and the biological half-life are also variable. Sources of radioactive materials include fall-out, industrial wastes, and nuclear reactors. Limiting maximum permissible concentrations of radioactive materials expressed in terms of specific radioisotopes and unidentified mixtures in water and food have been established (*35*), (*36*). The current standard should be consulted in evaluating the public-health significance of detected radioactivity in market shellfish.

The bacterial quality of active shellfish will ordinarily be directly proportional to the bacterial quality of the water in which they grew; however, considerable variation in individual determinations may be expected. The coliform MPN's of the shellfish usually exceed those of the overlying water because shellfish filter large quantities of water to obtain food, thereby concentrating the suspended bacteria. This relationship will depend upon the shellfish species, water temperature, presence of certain chemicals, and varying capabilities of the individual animals.

4. Conditionally Approved Areas.—The suitability of some areas for harvesting shellfish for direct marketing is dependent upon the attainment of an established performance standard by sewage treatment works discharging effluent, directly or indirectly, to the area. In other cases the sanitary quality of an area may be effected by seasonal population, or sporadic use of a dock or harbor facility. Such areas may be classified as *conditionally approved*.

State shellfish control agencies shall establish *conditionally approved* areas only when satisfied that (a) all necessary measures have been taken to insure that performance standards will be met, and (b) that precautions have been taken to assure that shellfish will not be marketed from the areas subsequent to any failure to meet the performance standards and before the shellfish can purify themselves of polluting microorganisms.

Satisfactory compliance.—This item will be satisfied when—

a. The water quality requirements for an *approved* area are met at all times while the area is approved as a source of shellfish for direct marketing.

b. An operating procedure for *each conditionally approved* area is developed jointly by the State shellfish control agency, local agencies, including those responsible for operation of sewerage systems, and the local shellfish industry. The operating procedure should be based on an evaluation of each of the potential sources of pollution which may affect the area. The procedure should establish performance standards, specify necessary safety devices and measures, and define inspection and check procedures. (These procedures are described in

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See footnote 8 on page 13.

more detail in the following public-health explanation.)

c. A closed safety zone is established between the *conditionally approved* area and the source of pollution to give the State agency time to stop shellfish harvesting if performance standards are not met.

d. Boundaries of *conditionally approved* areas are so marked as to be readily identified by harvesters.

e. Critical sewerage system units are so designed, constructed, and maintained that the chances of failure to meet the established performance standards due to mechanical failure or overloading are minimized.

f. There is a complete understanding of the purpose of the *conditionally approved* classification by all parties concerned, including the shellfish industry. Successful functioning of the concept is dependent upon the wholehearted cooperation of all interested parties. If such cooperation is not assured the State should not approve the area for direct harvesting of market shellfish.

g. Any failure to meet the performance standards is immediately reported to the State shellfish control agency by telephone or messenger. In some instances States may find it desirable to delegate the authority for closing a *conditionally approved* area to a representative of the agency located in the immediate area.

h. The State immediately closes *conditionally approved* areas to shellfish harvesting following a report that the performance standards have not been met. The area shall remain closed until the performance standards can again be met plus a length of time sufficient for the shellfish to purify themselves so that they will not be a hazard to the public health. (See section D–1, "Relaying," for information on the length of time required for self-purification of shellfish.)

i. The State shellfish control agency makes at least two evaluations during the shellfish harvesting season of each *conditionally approved* area including inspection of each critical unit of the sewerage system to determine the general mechanical condition of the equipment, the accuracy of recording devices, and the accuracy of reporting by the operating agency.

j. It is discovered that failure to meet performance standards have not been reported by the operating agency, or if the performance standards are not met, the area will immediately revert to a *restricted* or *prohibited* classification.

k. All data relating to the operation of a *conditionally approved* area, including operation of sewerage systems, are maintained in a file by the State shellfish control agency.

Public-health explanation.—The *conditionally approved* classification is designed primarily to protect shellfish growing areas in which the water quality might undergo a significant adverse change within a short period of time.[10] The change might result from overloading or mechanical failure of a sewage treatment plant, or bypassing of sewage at a lift station.

Water quality in many growing areas in the more densely populated sections of the country is, to some degree, dependent upon the operation of sewage treatment plants. For example, the boundaries of an approved shellfish area might be determined during a period when a tributary sewage treatment plant is operating at a satisfactory level. If there is some interruption in treatment it follows that there will be some degradation in water quality in the growing area, which may justify a relocation of the boundaries. The degree of relocation would depend upon such items as the distance between the pollution source and the growing area, hydrography, the amount of dilution water, and the amount of pollution.

The concept is also applicable to other situations in which there may be a rapid or seasonal change in water quality. Examples of such situations include—

a. A growing area adjacent to a resort community. During the summer months the community might have a large population which might have an adverse effect on water quality. However, during the winter when there are few people in the community the water quality might improve sufficiently to allow approval of the area. In some States this is known as a seasonal closure.

b. A protected harbor in a sparsely settled area might provide anchorage for a fishing fleet several months a year. When the fishing fleet is in, the harbor water would be of poor sanitary quality; however, during the remainder of the year the quality of the harbor water might be satisfactory. The area would be approved for shellfish harvesting only when the fishing fleet is not using the harbor.

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[10] A natural disaster may also cause many sewage treatment plants to be out of service for an extended period of time. The *conditionally approved* area concept is not ordinarily concerned with such emergency situations.

c. The water quality in an area fluctuates with the discharge of a major river. During periods of high runoff the area is polluted because of decreased flow time in the river. However, during periods of low runoff the area might be of satisfactory quality and thus be approved for shellfish harvesting.

The establishment of *conditionally approved* areas might be considered whenever the potential for sewage contamination is such that the limiting water quality criteria for an *approved* area might be exceeded in less than one week due to a failure of sewage treatment, or other situations as described above.

The first step in determining whether an area should be placed in the *conditionally approved* classification is the evaluation of the potential sources of pollution in terms of their effect on water quality in the area. Potential sources of pollution include the following:

(1) Sewage treatment plants.

(*a*) Bypassing of all or part of sewage because of mechanical or power failure, hydraulic overloading, or treatment overloading.

(*b*) Reduced degree of treatment due to operational difficulties or inadequate plant.

(2) Sewage lift stations.

(*a*) Bypassing during periods of maximum flow due to inadequate capacity.

(*b*) Bypassing because of mechanical or power failure.

(3) Interceptor sewers or underwater outfalls.

(*a*) Exfiltration due to faulty construction.

(*b*) Leakage due to damage.

(4) Other sources of pollution.

(*a*) Sewage from merchant or naval vessels.

(*b*) Sewage from recreation use of area.

The second step in establishment of a *conditionally approved* area is the evaluation of each source of pollution in terms of the water quality standards to be maintained, and the formulation of performance standards for each installation having a significant effect on the sanitary quality of the area. Examples of performance standards might include:

(1) Bacteriological quality of effluent from sewage treatment plants. This might be stated in terms of chlorine residual if the bacteriological quality of the effluent can be positively related to chlorine residual. The following is an example of a performance standard (*37*): "The median coliform MPN, in any one month, shall not exceed 500 per 100 ml., based on not less than 16 composite samples per month, and not more than 10 percent of the samples shall have an MPN in excess of 10,000 per 100 ml. Determinations of the chlorine residual of the effluent should be made hourly and recorded in the permanent plant records."

(2) Total quantity of sewage which can be discharged from any given unit, or from a combination of units, without causing the basic water quality standards to be exceeded.

(3) Amount of shipping in the area and the amount of sewage which can be expected.

Design criteria which may be useful in formulating an opinion on the quantity of sewage which can be discharged into an area without exceeding the desired water quality standards include: Population equivalent (*coliform*) of sewage; predicted survival of coliform in sea water, effectiveness of chlorination, and the total quantity of clean dilution water in an area. Results of many studies on the survival of bacteria in sea water have been summarized in *An Investigation of the Efficacy of Submarine Outfall Disposal of Sewage and Sludge;* Publication No. 14, California State Water Pollution Control Board, 1956.

The mechanical equipment at critical sewage treatment or pumping units should be such that interruptions will be minimized. Wherever possible operations should be automatically recorded on charts. Examples of the requirements which might be imposed, depending upon the importance of the unit in terms of water quality, include:

(1) Ample capacity for storm flows. (Storm water should ordinarily be excluded from the sanitary system.)

(2) Standby equipment to insure that treatment or pumping will not be interrupted because of damage to a single unit or to power failure.

(3) Instrumentation of pumps and equipment to allow the regulatory agency to determine that performance standards have been met. Examples include:

(*a*) Recording scales to indicate rate of chlorine use. Chlorine flow can be integrated with hydraulic flow to establish a ratio.

(*b*) Liquid level recording gages in overflow channels of sewage treatment plants and wet wells of lift stations to indicate when overflow takes place. Charts should be dated and initialed by the operator. Gages should be calibrated so that discharge can be estimated.

(*c*) Automatic devices to warn of failure or malfunctioning at self-operated pumping stations or treatment plants.

(4) The effect of storm sewage can be calculated by multiplying the total estimated flow by the observed coliform content. The result can be expressed in terms of population equivalents (*coliform*).

Design and operation of equipment should be such that closure provisions should not have to be invoked more than once per year under ordinary circumstances.

A closed safety area should be interposed between the *conditionally approved* area and the source of pollution. The size of such area should be based on the total time it would take for the operating agency to detect a failure, notify the State shellfish control agency, and for the latter agency to stop shellfish harvesting. It is recommended that the area be of such size that the flow time through the safety area be at least twice that required for the notification process to become effective. Due consideration should be given to the possibility that closure actions might be necessary on holidays or at night.

The type of marking which will be required for *conditionally approved* areas will vary from State to State depending upon the legal requirements for closing an area.

The length of time a *conditionally approved* area should be closed following a temporary closure will depend upon several factors including the species of shellfish, water temperature, purification rates, presence of silt or other chemicals that might interfere with the physiological activity of the shellfish, and the degree of pollution of the area. (See section D–1 of this manual for additional information on the natural purification of shellfish.)

5. Restricted Areas.—An area may be classified as *restricted* when a sanitary survey indicates a limited degree of pollution which would make it unsafe to harvest the shellfish for direct marketing. Alternatively the States may classify such areas as prohibited. (See section C–6, this manual.) Shellfish from such areas may be marketed after purifying or relaying as provided for in section D.

Satisfactory compliance.—This item will be satisfied when the following water quality criteria are met in areas designated by States as *restricted*.[11] [12]

a. The area is so contaminated with fecal materials that direct consumption of the shellfish might be hazardous, and/or

b. The area is not so contaminated with radionuclides or industrial wastes that consumption of the shellfish might be hazardous, and/or

c. The coliform median MPN of the water does not exceed 700 per 100 ml. and not more than 10 percent of the samples exceed an MPN of 2,300 per 100 ml. in those portions of the areas most probably exposed to fecal contamination during the most unfavorable hydrographic and pollution conditions. (Note: this concentration might be exceeded if less than 800,000 cubic feet of a coliform-free dilution water are available for each population equivalent (*coliform*) of sewage reaching the area.)

d. Shellfish from *restricted* areas are not marketed without controlled purification or relaying.

Public-health explanation.—In many instances it is difficult to draw a clear line of demarcation between polluted and nonpolluted areas. In such instances the State may, at its

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[11] It is not mandatory that States use this classification. Areas not meeting the *approved* classification may be closed to all harvesting for direct marketing.

[12] Routine sanitary surveys and reappraisals of *restricted* areas shall be made on the same frequency as for *approved* areas. (See section C–1.)

option, classify areas of intermediate sanitary quality as *restricted* and authorize the use of the shellfish for relaying, or controlled purification.

6. Prohibited Areas.—An area shall be classified *prohibited* if the sanitary survey indicates that dangerous numbers of pathogenic microorganisms might reach an area. The taking of shellfish from such areas for direct marketing shall be prohibited. Relaying or other salvage operations shall be carefully supervised to insure against polluted shellfish entering trade channels. Actual and potential growing areas which have not been subjected to sanitary surveys shall be automatically classified as *prohibited.*

Satisfactory compliance.—This item will be satisfied when:

a. An area is classified as *prohibited* if a sanitary survey indicates either of the following degrees of pollution:

(1) The area is contaminated with radionuclides or industrial wastes that consumption of the shellfish might be hazardous and/or

(2) The median coliform MPN of the water exceeds 700 per 100 ml. or more than 10 percent of the samples have a coliform MPN in excess of 2,300 per 100 ml. (Note: This concentration might be reached if less than 800,000 cubic feet of a coliform-free dilution water are available for each population equivalent (*coliform*) of sewage reaching the area.)

b. No market shellfish are taken from *prohibited* areas except by special permit as described in section D.

c. Coastal areas in which sanitary surveys have not been made shall be automatically classified as *prohibited.*

Public-health explanation.—The positive relationship between enteric disease and the eating of raw or partially cooked shellfish has been outlined in section C-1. Prevention of the interstate transport of shellfish containing sufficient numbers of pathogenic microorganisms to cause disease is a primary objective of the National Program. Therefore, areas containing dangerous concentrations of microorganisms of fecal origin, or areas which may be slightly contaminated with fresh fecal discharges, should not be approved as a source of shellfish for direct marketing.

⑦ Closure of Areas Due to Shellfish Toxins.—The State shellfish control agency shall regularly collect and assay representative samples of shellfish from growing areas where shellfish toxins are likely to occur. If the paralytic shellfish poison content reaches 80 micrograms per 100 grams of the edible portions of raw shellfish meat, the area shall be closed to the taking of the species of shellfish in which the poison has been found.[13] The harvesting of shellfish from such areas shall be controlled in accord with the recommendations of sections E-1 and E-2 of this manual.

The quarantine shall remain in effect until such time as the State shellfish control agency is convinced the poison content of the shellfish involved is below the quarantine level.[14]

Satisfactory compliance.—This item will be satisfied when—

a. The State shellfish control agency collects and assays representative samples of shellfish for the presence of toxins from each suspected growing area during the harvesting season. (See section B-2 for assay methods.)

b. A quarantine is imposed against the taking of shellfish when the concentration of paralytic shellfish poison equals or exceeds 80 micrograms per 100 grams of the edible portion of raw shellfish.

Public-health explanation.—In some areas paralytic poison is collected temporarily by bivalve shellfish from free-swimming, one-celled marine plants on which these shellfish feed. The plants flourish seasonally when water conditions are favorable.

Cases of paralytic poisoning, including several fatalities, resulting from poisonous shellfish have been reported from both the Atlantic and Pacific coasts. The minimum quantity of poison which will cause intoxication in a susceptible person is not known. Epidemiological investigations of paralytic shellfish poisoning in Canada have indicated 200 to 600 micrograms of poison will produce symptoms in susceptible persons and a death has been attributed to the ingestion of a probable 480 micrograms of poison. Investigations indicate that lesser amounts of the poison have no deleterious effects on humans. Growing areas should be closed at a lower toxicity level to provide an adequate margin of safety since in many instances toxicity levels will change rapidly (*38*) (*39*). It has also been shown that the heat treatment afforded in ordinary canning processes reduces the poison content of raw shellfish considerably.

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[13] This value is based on the results of epidemiological investigations of outbreaks of paralytic shellfish poison in Canada in 1954 and 1957 (*38*) (*39*).

[14] The provisions of this item apply only to shellfish which will be marketed as a fresh or frozen product as properly controlled heat processing will reduce the poison content of the shellfish.

A review of literature and research dealing with the source of the poison, the occurrence and distribution of poisonous shellfish, physiology and toxicology, characteristics of the poison, and prevention and control of poisoning has been prepared (*40*).

In Gulf coast areas toxicity in shellfish has been associated (*12*) (*76*) with Red Tide outbreaks caused by mass bloomings of the toxic dinoflagellate, *Gymnodinium breve.* Toxic symptons in mice suggest a type of *ciguatera* fish poisoning rather than symptoms of paralytic shellfish poisoning.

MR. KLASHMAN. Are there any other representatives of the Federal Government that wish to be heard?

(No response.)

MR. KLASHMAN. If not, this concludes our statement at this time.

CHAIRMAN STEIN. May we have a 10-minute recess and then we will hear from the States.

(Short recess.)

CHAIRMAN STEIN: Let us reconvene, please.

Before we go on with the continuance of the New Hampshire presentation, we are going to call on Mr. **Newell** with a statement from New Hampshire on the development of the anadromous fishery.

Will you please give your full name and title?

STATEMENT OF ARTHUR E. NEWELL, SUPERVISOR
FISHERIES RESEARCH
NEW HAMPSHIRE FISH AND GAME DEPARTMENT
CONCORD, NEW HAMPSHIRE

MR. **NEWELL**: Ladies and gentlemen, my name is Arthur Newell. I am Supervisor of Fisheries Research for the New Hampshire Fish and Game Department.

In connection with the previous talk by Mr. Schrader

I simply would like to add that the Massachusetts Department of Fisheries and Game and the New Hampshire Fish and Game Department have been cooperating on an anadromous fish restoration program in the Merrimack Basin for approximately two years.

We have established a time schedule. We have not progressed at this point as far as we have on the Connecticut, but at the present time we believe that somewhere between 1975 and 1978 that we should be having anadromous fish up, at least, into the New Hampshire section of the river. This would be American Shad and, perhaps, not quite so soon, we anticipate having Atlantic Salmon up into the Pemigewasset and its tributaries.

I believe that is all I have.

CHAIRMAN STEIN. We will now call on Mr. Healy for the rest of the New Hampshire presentation.

STATEMENT OF WILLIAM A. HEALY
EXECUTIVE DIRECTOR
NEW HAMPSHIRE WATER SUPPLY AND POLLUTION
CONTROL COMMISSION
CONCORD, NEW HAMPSHIRE

MR. HEALY. Mr. Chairman, New Hampshire intends to enter a policy statement on behalf of the Commission. This will be done by Mr. James A. Sweeney, the Vice Chairman of the Commission, who is sitting on my left.

In addition to his prepared statement, our Director of Municipal Services, Clarence Metcalf, will make a brief statement indicating what changes are proposed in the way of the legislation at the upcoming 1969 session of the General Court so as to accommodate the various criticisms or recommendations outlined in Secretary Udall's letter of approval of our water quality standards. He did stipulate in a number of areas that changes would be required in the New Hampshire statutes and its program so as to meet the Federal objectives.

So I will ask Mr. Sweeney to make his statement now.

STATEMENT OF JAMES A. SWEENEY, VICE CHAIRMAN
NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION, CONCORD, NEW HAMPSHIRE

MR. SWEENEY. Thank you, Bill.

Mr. Chairman, in appearing before you today with regard to the pollution control measures which the New Hampshire Water Supply and Pollution Control Commission has planned for the Merrimack River, I would like to offer a brief opening statement so that these proposals will be clearly understood by all parties concerned.

As you know, the New Hampshire Commission had its water quality standards approved by the Secretary of the Department of the Interior under date of August 16, 1968. In indicating his approval of the submission the Secretary inserted a number of reservations, one of which excluded approval of the standards for the Merrimack River. His letter went on to express concern that the New Hampshire compliance schedules for the cities of Manchester and Concord were not compatible with the schedule established by the Commonwealth of Massachusetts for this particular watershed.

In response to this criticism, I would have to say that careful consideration was given by us to the fact that some disparity in time did exist between the project schedules in the two States. However, such a situation is inevitable, because in developing the construction schedule we had to take into account the availability of Federal and State grant money to fund the various projects which would be needed to satisfy the control needs along the New Hampshire portion of the Merrimack River.

It is significant to note here that the Federal appropriations are already in default of the amounts authorized in the Federal Water Pollution Control Act, and this can only have a damaging effect on the schedules which were contained in the water quality standards earlier approved by the Secretary. Undoubtedly, the same unfavorable impact will be felt in other States, since, to the best of our knowledge, the vast majority, if not all States, have counted upon full Federal appropriations in preparing project construction schedules for your review and consideration.

Returning to the difference in time which does exist between New Hampshire and Massachusetts schedules, it should be pointed out that we did consult with the Commonwealth of Massachusetts authorites and they still have no objection to the limits which have been established in the implementation plan prepared by New Hampshire. They are aware of the many pressing projects which must be constructed along other interstate streams within the boundaries of this State and recognize the financial commitments which are represented therby. In other words, there is a complete appreciation of the fact that the schedules which have been developed Statewide are fair and equitable in every instance; giving due regard, of course, to the grant funds which can be anticipated over the next several years.

Incidentally, it may be well to indicate at this time that a considerable amount of control has already been established in the Merrimack Basin. For example, in the Pemigewasset River watershed, which your agency considers to be the main stem of the Merrimack River, sizable pollution control projects are well under way in Lincoln, Ashland, Plymouth, Bristol and Hooksett. In addition, communities such as New Hampton, Goffstown, Derry, Salem and Nashua have completed construction of control facilities. These plants have resulted in improvement of water quality in the watershed, and when the others which I mentioned are finished within the next year or so, other significant improvements in water quality will be realized. Major communities like Manchester and Concord are actively planning for similar control measures and, thus, it has been estimated that the entire river will be cleaned up by 1977. This estimate, as indicated earlier, was prepared on the basis of full Federal appropriations.

The State Legislature has continued its policy of making adequate funds available to meet its obligations, and there is every expectation that this will continue to be the case over the next several years. When we examine what has been done to date and review realistically what can be done in the light of Federal funds currently available to us, the New Hampshire program must be regarded as a highly satisfactory one. What is needed now, and needed badly -- is a drastic upturn in Federal appropriations to relieve the bottleneck which has been created by the unfortunate curtailment in funding at the Federal level.

The prospects of some relief through the contract provisions incorporated in S.3206 held some promise of relief, however, because the formula for allocating contract capacity to the several States was based strictly upon population, we understand that only something in the neighborhood of $750,000 in contract capacity would have been made available to New Hampshire if the legislation had been passed. This, of course, is far less than what is needed, when viewed in the light of grant funds needed in the City of Manchester, to say nothing of Concord and the other major projects, which will be necessary to establish full control over pollution in the river.

Thus, Mr. Chairman, I would suggest in the strongest terms possible that the most important contribution this conference could make is in the area of focusing attention upon the critical shortage of Federal grant funds and the necessity for bringing about an immediate solution in this regard in order that all communities within the basin -- New Hampshire and Massachusetts alike -- may proceed forthwith in the construction of the required abatement facilities.

James Sweeney

Any delays in achieving established construction schedules is regrettable, since we all recognize that this can only result in higher costs to everyone, inasmuch as the cost of construction continues to rise markedly from one year to another.

I would like to close by pledging our best effort to complete the secondary treatment program for the watershed at the earliest feasible time, but the funds to do this must be forthcoming.

There is one other brief comment on conservation to be made regarding compliance with construction schedules. This is that I most heartily agree with the position stated by Assistant Secretary for Pollution Control, Max Edwards, during the appearance before the Water Pollution Control Federation sessions in Chicago on September 24, 1968. In part he had this to say:

> "We believe that the Federal Government must help our cities and towns meet their tremendous water pollution expenditures. And we believe that it must be done now. How can we insist that the States adopt tough water quality standards and, at the same time, fail to commit the necessary Federal dollars?"

Putting it another way how can the Federal Water

Pollution Control Administration expect a State to improve upon its compliance schedules, in this instance the Merrimack River, unless there is a parallel and substantial increase in the amounts of money made available to accomplish the objective?

I would like nothing better than to finish the job instantly, but this we know cannot be done. We must work together and do the best job possible within the funds available to complete the work.

CHAIRMAN STEIN. Thank you, Mr. Sweeney.

Are there any comments or questions?

(No response.)

CHAIRMAN STEIN. Thank you very much for your statement, sir.

Mr. Healy.

MR. HEALY. Next is Clarence Metcalf, please.

CHAIRMAN STEIN. I would suggest that all people that have statements, as a first priority, give their copy of the statement to the Reporter and then possibly the conferees.

STATEMENT OF CLARENCE W. METCALF
DIRECTOR OF MUNICIPAL SERVICES
NEW HAMPSHIRE WATER SUPPLY AND POLLUCTION
CONTROL COMMISSION, CONCORD, NEW HAMPSHIRE

Clarence Metcalf

MR. METCALF. Mr. Chairman, conferees, ladies and gentlemen, the purpose of my remarks is to indicate in a more specific way, than has been possible in Vice Chairman Sweeney's comments, the various approaches which the Commission has authorized to satisfy the recommendations which Secretary Udall outlined in his letter of August 16, 1968, to Governor King, in which he indicated approval, in principal, of the State of New Hampshire Water Quality Standards.

You have heard Mr. Sweeney emphasize in considerable detail the need for realistic Federal appropriations to meet construction schedules which were submitted for the Merrimack River and several other interstate waters which flow from New Hampshire to other States. Perhaps there is no other single individual on the Commission staff who appreciates the need for adequate appropriations more than myself, since, in my position, I have had the unfortunate duty, at times, of recommending which out of several worthy projects can be funded because of the insufficient Federal allocations. Thus, in order to overcome this handicap and to obtain Federal approval of our Standards, it was necessary for the Commission and Governor King to agree to the introduction of prefinancing legislation in the 1969 session of the General Court. This legislation is now in process in the Office of

Legislative Services and, if enacted, will provide for advancing the Federal share grant funds for secondary treatment projects at Nashua, Manchester and Concord.

To cope with another request for an exception in the control program, we are asking that the Office of Legislative Services give consideration to inclusion of the town of Plymouth in the secondary treatment, prefinancing effort. In considering secondary treatment for this town, it is necessary to include the work as part of a prefinancing program as recent reductions in authorized Federal allocations of better than 50 percent make it impossible to finance the project from any other source. It can be mentioned also at this point that the Interim Legislative Committee for Water Pollution Abatement has also been evaluating the desirability of introducing legislation to establish a broad prefinancing program for the entire State.

It has been clear to the members of this Committee, which has maintained continuing surveillance of the abatement program throughout the State, that a full scale prefinancing system similar to that in effect in the neighboring States, such as Massachusetts, Maine, Connecticut, New York, etc., has considerable merit, especially when due recognition is given to the problem of skyrocketing costs. Most recently construction costs have been advancing at a rate approaching 10 percent per year. The consequence of spiraling costs has impressed the Committee to the extent that it recently voted to introduce and support general prefinancing legislation. This, coupled with the other bill which I mentioned earlier, will, if successful, help us to accelerate control measures to some extent in the tributaries to the Merrimack River. These are, for the most part, intrastate waters, but nevertheless a balanced abatement program is essential.

To compensate for the exception which the Secretary took in regard to temperature criteria, I should like to indicate that legislation is being developed to meet this criticism. It will consist of language supplanting the present provision that will allow the Commission to follow numerical criteria recommended by the Fish and Game authorities, the National Technical Advisory Committee or the New England Interstate Water Pollution Control Commission recommendations, whichever of these three will provide for the most effective control. This arrangement, we feel, will provide for more flexibility than the suggestion offered by the Secretary.

Another piece of legislation which will be introduced to satisfy the conditions of the Secretary's approval is one calling for the creation of salt water criteria in the New

Hampshire statute. It is mentioned at this time only to indicate the Commission intention to conform to the objectives of the Secretary's letter of approval to Governor King.

It was also brought out as a recommendation in Secretary Udall's letter that it would strengthen the program to establish bacteriological limits for Class C waters. Inasmuch as waters in this category are sometimes used for secondary contact recreation, such as fishing, boating or wading, our approach to the need for exercising some degree of control over the bacterial quality of Class C waters of necessity must come through careful and diligent supervision of disinfection practices of waste treatment plants discharging to such streams. This is a much more direct and, in our judgment, more significant means for guarding against infection than is being suggested through the creation of coliform limits for Class C waters. The problem of overflows from combined sewers is a difficult one in dealing with any attempt to control limits of bacterial densities in Class C waters. On the other hand, the results of disinfection of sewage effluents can be very carefully controlled and evaluated by frequent inspection and analysis of the treatment plant operations.

Some concern has also been expressed by the Regional

Office in its supplementary report on the Merrimack River as regards the phenol level. At the present time we know of only one potential source of waste discharge which could contain phenol material, and this arises because of plant scale treatment of wooden timbers and pollution with creosote and associated oils. We know of no reason why this needs to result in contributions of phenol to the river and whatever control measures which might be necessary to prevent pollution from such an operation will be imposed.

At this time I think it is in order to assure the participants at this conference that the New Hampshire Commission will make every effort to insure full compliance with the classification requirements of the Merrimack River as it flows through New Hampshire to the Commonwealth of Massachusetts.

Thank you.

CHAIRMAN STEIN. Thank you.

Are there any questions or comments?

MR. KLASHMAN. I have a couple.

Mr. Metcalf, on the compliance dates, you know, in the schedule, what are the dates that you are talking about for Manchester, Concord and Plymouth? Do you have a copy of this? (Indicating.)

MR. METCALF. I have a copy.

MR. KLASHMAN. Mr. Pahren has given a recommendation ---

Will you strike my question, please. I am sorry.

Are you going to take that up?

MR. HEALY. Yes, we will.

CHAIRMAN STEIN. Let us hold that.

Off the record.

(Discussion off the record.)

CHAIRMAN STEIN. May we go back on the record, please.

MR. KLASHMAN. There are a couple of more questions I wished to ask on this statement. I will raise them now, but you may want to answer them later.

First, the statement was made in talking about the temperature criteria that you follow the numerical criteria recommended by the Fish and Game authorities, the National Technical Advisory Committee or the New England Interstate Water Pollution Control Commission, whichever of these three will provide for the most effective control. Do I understand correctly that when you say "the most effective control" you mean the most restrictive of these three, whichever is the most restrictive?

MR. METCALF. As a matter of defining which you feel is the better type of control, effective or restrictive. I feel "effective" is a good word myself.

MR. HEALY. What I think he is saying, if I could add my voice to his, is simply this: That we expect that any of these numerical criteria should be supported with adequate backup information. This has been lacking up to this time.

We are taking the best judgment of the experts and certainly we should do this. But there are investigations now under way to provide us with supporting information so that we will know which set of numerical data we should follow.

Now, we want to draw on what we regard as the experts - the Fish and Game authorities in our own State, the Advisory Board at the Federal level and the New England Interstate - because we must work with the neighboring States and we want to select of those three sources the one that will provide us with the optimum control.

MR. KLASHMAN. Let me be specific. The National Technical Advisory Committee, for example, as I recall, has a maximum figure for a warm-water fishery of 83 or 86.

MR. PAHREN: I believe it is 83.

MR. KLASHMAN: They also have a figure where the temperature rise cannot be more than five degrees, and that is based on the Committee that the Secretary set up.

Let us suppose that New Hampshire Fish and Game Authority --- When you say "Fish and Game authorities," you mean the Fish and Game of New Hampshire?

MR. HEALY. I mean the Fish and Game Department.

MR. KLASHMAN. Of New Hampshire?

MR. HEALY. Yes.

MR. KLASHMAN. What if they came up with a difference of opinion, say between the national experts, and came up with, let's say, 84 degrees and 5-1/2 degrees rather than 5. Do I understand that you would accept --- Well, I thought that what you said was that you would accept the national figure in that case; or if vice versa, if the New Hampshire people came up with 82 degrees and the 4 degrees, then you would accept the New Hampshire one. That is not true?

MR. HEALY. This is just the problem. I am hopeful that the experts will get together and develop one common set of standards, but meanwhile we ought to be able to take the one that suits us best. Biologist Terrence Frost is here. Do you want to comment?

MR. FROST. I do not believe we want to comment anymore on what we said. We want the best standards. We could be less restrictive beyond the 5.

MR. KLASHMAN. You could be less restrictive?

MR. FROST. I cannot say now.

MR. KLASHMAN. I will accept that. As far as you can see, you cannot see yourself being less restrictive than the national. I have nothing further to say. That is good enough for me.

CHAIRMAN STEIN. Do you have another question?

MR. KLASHMAN. I have one other question.

I notice in the statement you say that you believe in supervising the disinfection of waste. In other words, you have an effluents standard in effect rather than a stream standard. But when you talk about disinfecting a waste, it is my understanding that you are talking about insisting on a maximum level of 240 coliform per hundred ml in the effluent. Is that correct?

MR. HEALY. This is in Class B waters. Yes.

MR. KLASHMAN. What about Class C?

MR. HEALY. To do a thorough job, it has been our experience that we will produce that result whether it is a Class C water of Class B water.

MR. KLASHMAN. When you are talking about an effluent standard, you are talking about 240 per hundred in effluent. So, therefore, while you do not accept the stream standard that we are talking about --- I believe it is 5,000 per one hundred --- you are going to put something in the stream that is way below that. So I do not see that there is any problem here.

CHAIRMAN STEIN. Except the stormwater. I think we got both of these problems. We are not going to solve every problem in every case. These are the emerging problems in pollution.

I may not be right on both these cases, but I have heard considerable testimony throughout the country on both these problems - one being the temperature business on the fish. What we are dealing with here is the best expert opinion we can get.

The point is, and my experience has always been, that the fish really do not listen to the experts too much as to what is good or not good. If it is no good, they do not reproduce. If it is they will.

The point Mr. Healy made is well taken - that we have to base this on experience. Since we are basing our notion on where we are going, in my opinion, we should keep ourselves flexible and as loose as possible. We should make adjustments on that, but have the facts speak for themselves.

On the next issue we have somewhat the same situation. Here is the key. The key is that what we are not here to do is spend millions and millions of dollars and just put in industrial or municipal waste plants at monstrous expense for pollution although we have to have clean water. Too often in the past, in various parts of the country, all that has been done is we build a plant and then we forget it. The check is to get into this.

Two ways to work at this is to get in a river standard or a water quality standard and an effluent standard. I have heard people argue for hours on which is the more important and I think they both are.

Now, here, as far as I see the situation on that, in some places where we have checked this maybe the results have not been too good. For example, we have spent hundreds of millions of dollars in the lower Lake Michigan area. We are not through with the program yet. But, in checking the waters, we find that the waters are about what they were in 1965 when we started. Perhaps, this is all we can do now because they have not gotten worse. At least, they have tapered off and when the program finishes they will be set.

However, what we have to do, once you check these waters and get out there and find the high coliform or a high anything else, you do not automatically have the control. Because of all the waste discharges you have, you do not know where that is coming from and you have to trace it back.

For a regulatory agency, I think it has been demonstrated by most of them that the best control that they can have is on the operations of the effluent so that they know each one is running correctly.

Now, as I see it by Mr. Metcalf's statement,here is what we have: If we are going to have disinfection, the only kind of control, really - the rigid kind of control - you can expect a regulatory agency to have, whether they have a stream standard on the coliforms or not, is controlling and managing the application of the chlorine, the retention time and the quality that comes out.

You are not really going to check that back through the streams. If you find a high count, this may give you a clue that maybe something is wrong and you are going to have to do that anyway. But the next point is that we have the stormwater overflows and there are times when this count is going to be high.

Now, the question that we really have to face is that if the stormwater overflows create some problems and they continue to create problems in Class C waters -- and this is a significant number of times during the recreation season or when people come into contact with the water -- we are just going to have to, I guess, meet that and get at it. Because if you go from a count that is too high, say over the 5,000 limit - again, the human body does not read these criteria, either you get sick or you do not - the point is we are going to have to meet that.

I would say that from the New Hampshire program, given what we are doing now and from a regulatory agency point of view, this view of reducing coliforms or reducing bugs or pathogens by checking on the operations of the plants and the application of the chlorine and the retention time, is probably the most effective way to get at this.

Recognizing again that with the stormwaters that we have here we may have a problem in the future where we cannot guarantee that those waters are going to be below 5,000 all during the summer, but we will have to get at that. That is another problem.

Again coming to the temperature business, it seems to me, since we are dealing with opinion, that the best thing that anyone could do now is take the best opinion; remain flexible; see what the effect on the fish is, if any; see if the biologists come up with hard, factual information, proved out, not only in the laboratory but in the field and if necessary modify it.

In other words, what I am saying is in various aspects of the program we will not have the last word here. I think New Hampshire will be the last one to admit it will have the last word. The reason we do not is that the art is always developing and we just do not know all the answers. What we are doing is setting up a broad program and in certain areas we are sort of feeling our way toward solutions.

Are there any other comments?

MR. KLASHMAN. I have one other thing that I wanted to raise.

In your statement you indicate, as I read it, that as the water flows across the State line you are going to have full compliance with the classification plans of the Merrimack. As you know, the Secretary in his letter to the Governor raised the question. What we said was:

> "To fully protect public water supply use of interstate waters, criteria should be established to prevent radiological and chemical contamination. Many States have found it appropriate to reference the U. S. Public Health Service Drinking Water Standards (1962) in this regard."

It is my understanding, by your statement, that you are going to meet whatever is necessary; that as far as the chemical and rediological need of the water supplies downstream from you are concerned, that if there were any problems -- I don't believe there are now -- you would meet the United States Public Health Service drinking water standards. I am talking about the raw water standards.

MR. HEALY. All I can make here is a general observation, and it is this: That New Hampshire is fully aware of the water supply uses at Lowell and Lawrence, and we intend in our operation to do our very best to safeguard, even though we recognize, too, that these are conflicting water uses in a sense because we are discharging a Class C water in that State. Nevertheless, we will make our very best effort to take whatever steps have to be taken to protect the raw water quality in the stream, giving some recognization to the fact that it is a water supply use.

There also has to be a dual recognition in the State of Massachusetts by its local officials and others in charge of water supply activities that they will apply whatever treatment measures are necessary in regard to the fact that this stream does have a multiplicity of uses. There is no present standard.

MR. KLASHMAN. There is none. But if one were to develop you would limit it? That is my question.

MR. HEALY. I believe that there is not one now and it is not germane to the discussion.

MR. KLASHMAN. Well, the Secretary raises it in his letter and that is the reason I bring it up. There is no problem now, as far as I know and you know, and you will prevent one from developing.

MR. HEALY. I will say this: New Hampshire recognizes that we have to operate under the standards and criteria that the Legislature establishes. It has now established a Class C water for the Merrimack River as it flows into Massachusetts. There are certain classifications in that law that relate to classification, and we intend to meet them. We intend to move the control program just as rapidly as possible, having in mind, as we must, the amounts of State and Federal aid that are available to assign to municipalities to do the necessary job.

I think that is a very reasonable assurance of what New Hampshire's intention is, and that is the best I can do.

MR. PELOQUIN. Mr. Chairman, on that comment on the criteria, New Hampshire has, as a signatory State in the Interstate compact, pledged to abide by the standards developed by the New England Interstate Water Control Commission. These standards are being considered. Whether or not they are revised will depend upon the final decision of the Commission's Advisory Board. But this is under act of consideration at the present time. I can state that there is among the criteria one relating to radiological standards. I think it would be premature to agree to any water quality criteria at the present time, because we feel that whatever is adopted should be applicable to the Northeast and will necessarily subscribe to the national protective criteria. We feel that it is ---

MR. KLASHMAN. You do not take any exceptions to the United States Public Health Service radiological drinking standards?

MR. PELOQUIN. These are under consideration and we have been discussing these with the radiological consultant with the Public Health Service, and we will be discussing them again on January 13.

CHAIRMAN STEIN. I hate to bring this up, but as a procedural matter, while we all feel ourselves competent to handle the standards in radiation, I do not think the conference really has the authority, even if we were to make a decision. That is another process. I believe Mr. Klashman and Mr. Peloquin have pointed that out.

I am sure there is going to be no problem, but just as a fair statement, particularly if we deal with something like radiation, either the State or the Interstate Commission is going to handle that adequately. Or if there is a radiation problem in any field, I can assure you I am going to be right here, and this will not be a choice of mine because someone is going to tell me to come right up.

Now, in dealing with problems on radiation because of its being such a hazard, I know of no case where we have not come into complete agreement with the State and worked it out. This is not the kind of hazard you can fool around with very long.

So I would suggest that we just put that in the back corner, at least for this conference.

MR. HEALY. I think that is a very fair comment.

We have also under consideration legislation which will allow us to do precisely what Mr. Peloquin has indicated here - to conform in complete harmony with the New England Interstate standards, as and when it is necessary. But as of the moment there are no discharges of this sort here and we see no reason to make a commitment at this time, and it would be immature.

CHAIRMAN STEIN. Thank you.

Mr. McMahon.

MR. McMAHON. Mr. Chairman, I would just like to say, as far as Massachusetts is concerned, we have been working together with New Hampshire for a number of years under the New England Interstate Water Pollution Control Compact and I am certainly confident New Hampshire will honor their commitments on interstate waters and we, in Massachusetts, plan on doing the same thing. If there are problems that do develop such as radiological contamination, this is something that certainly the two States can work out together.

MR.KLASHMAN. I have nothing further.

CHAIRMAN STEIN. May we go on, Mr. Healy?

MR. HEALY. Thank you. Time is escaping us.

There are a number of local officials and members of various groups that have spoken to me indicating they do wish to make brief statements for the record so their position will be made known. I know from my conversations with these people from time to time that they are all recognized supporters of the program. There is no difference in objective here. It is a question of timing and financing, really, that troubles us.

The city of Nashua has three representatives here. Nashua has been outstanding in its voluntary efforts to comply with the control program, and I would ask first that Representative Maurice Bouchard speak to you.

STATEMENT OF MAURICE L. BOUCHARD, REPRESENTATIVE, GENERAL COURT ALDERMAN, DISTRICT 14 OF NASHUA

NASHUA, NEW HAMPSHIRE

REPRESENTATIVE BOUCHARD. Thank you, Mr. Healy.

Mr. Chairman, members of the Committee, ladies and gentlemen, I am Maurice Bouchard, Representative of the

General Court from District 14 in Nashua, and I am also a member of the Nashua River Water Pollution Commission which was created in the 1967 legislative session.

I wish to extend Mayor Sullivan's best wishes for the success of this conference. He is very sorry and regretful that he could not attend here today.

My statement is of a general nature, not being an expert in this particular field. I have worked on the problem. I have tried to come to some solutions on it and I hope you will bear with me. It is not too lengthy a comment.

A few days ago, or a short while ago, my wife and I were standing on the bank at the Nashua River and at our feet was an incredible amount of industrial waste, but looking down at the graceful curve of the river and the trees along its banks the eye found much that was pleasing and my thoughts drifted back to a similar scene.

A few years ago we were visiting some good friends in Wisconsin and while there we were taken on a boat ride on the Fox River. It was lovely, as our Nashua and Merrimack Rivers.

However, along the banks of the Fox are located the prime residential homes of Neenah and Menash in Appleton, Wisconsin, with private docks, motor launches and also much land set aside for the beautiful parks for all to enjoy.

I thought of the beauty, the recreational facilities, the enjoyment, and, as Alderman at large of the city of Nashua, of the potential revenue that would accrue to the city if it would realize the full potential of this riverfront property.

At one time these rivers of ours teemed with salmon and other fish. Within the memory of many of Nashua residents, we can remember the canoe rentals on the Nashua River, where many a young man courted the lady of his choice.

Now residents of the Northwest section of our city of Nashua, through which flows the Nashua River, complain, and rightly so, of the permeating stench of pollution.

It is well known that the industries and municipalities in the Commonwealth of Massachusetts, which constitutes the major sources of pollution, are now embarked on a program of engineering and construction to abate water pollution in this watershed. Both Massachusetts and New Hampshire have classified the main stem of this watershed. We have both classified this as Class C waters as it enters and flows through the State of New Hampshire. The Commonwealth of Massachusetts has recently established a prefinancing law, which will allow an accelerated construction schedule -

despite the current shortage of Federal funds - to the further cost of grants to which the various municipalities are normally entitled.

The Nashua River Pollution Control Commission was assured by the Massachusetts authorities that all projects, industrial and municipal, to abate in the Nashua River Basin will be in operation not later than the spring of 1972. The New Hampshire control in this basin, which, for all practical purposes, involves only the city of Nashua, was scheduled for completion in the spring of 1976 and is dependent upon the availability of Federal funds to support the city's effort to reduce the pollution flow to the natural river. Residents in the basin can take the position that municipal, State and Federal Government, together with industry, should work together and cooperate in providing the answer of and solution of water pollution projects which has plagued the river for years. The only barrier is the lack of adequate financing.

Statutes now in effect are adequate to control pollution and the control agencies of the two States are operating effectively. The Commission does not recommend any new or special legislation to control pollution in the Nashua River. It does, however, strongly urge that the General Court enact legislation to prefinance needed pollution control projects, not only in the Nashua River Basin but also in other areas of the State where such measures are required to return the State surface waters to a useful condition.

The Commission recognizes the extreme urgency of prefinancing because of the rapid increase in construction costs. Construction costs are now increasing at a rate approaching 10 percent a year. Thus, any delay in construction of needed facilities will certainly result in higher costs to Federal, State and local governments. Since the cost of pollution control facilities is obviously going to require substantial financial investment by the State and its municipalities, it seems only logical that very serious consideration be given to any means of combating the problem of escalating construction costs. Prefinancing is a reasonable answer to this dilemma, and the members of Nashua Water Pollution Control Commission strongly recommend that it receive careful consideration and support from the 1969 New Hampshire General Court.

CHAIRMAN STEIN. Thank you.

Are there any comments or questions?

(No response.)

MR. BOUCHARD. Thank you for your consideration, Mr. Healy.

STATEMENT OF BERTRAND BOUCHARD, ALDERMAN
CITY OF NASHUA
CHAIRMAN, NASHUA RIVER WATER POLLUTION COMMITTEE
NASHUA, NEW HAMPSHIRE

MR. HEALY. Alderman Bertrand Bouchard.

ALDERMAN BOUCHARD. Thank you, Mr. Healy and Chairman and ladies and gentlemen?

My name is Bertrand Bouchard. I am appearing here as Chairman of the Nashua River Water Pollution Control Commission and as Alderman of the city of Nashua and also, if I may, as a citizen of the State, member of the Audubon Society, family man, etc. In other words, as a person interested in conservation, not simply as an expression but as a pragmatic idea - something we have to put through because we need it.

Now, just taking one second if I may because I am not a pro at this -- I do not have any objective data to refer to -- I, too, would like to point out why this problem is so important to me. If I may just for one second personalize here, I became interested many years ago in water pollution because I take for granted by now a lot of the pollution, for example, going on the Merrimack River and going through Nashua, because all my life I can remember being told you should never go and bathe in the Merrimack River because it was so dirty, and I am 40 years old. So this has been going on for sometime.

However, as I say, a few years ago, I read the Thoreau on boating in the Concord and Merrimack River, and I read about the beautiful Merrimack River and about his going through Nashua. I was really stunned by this, because it seemed unbelievable that someone on his own would go down the Concord and Merrimack Rivers and say it is beautiful. You know, it is something that you just cannot conceive of today.

So I think we have got to do something for preservation and conservation of our resources and of our natural beauty, and it is not easy. Therefore, I would like to urge increased Federal participation. That is to say, 1) the Federal Government meeting its financial schedule of the needed funding and 2) as pointed out by Alderman at large Bouchard, the preceding speaker -- we are both Bouchards by the way -- I would like to point out that I, too, share 100 percent his view for the need for State participation through an adequate prefinancing program.

Thank you.

CHAIRMAN STEIN. Thank you, Mr. Bouchard. I do not believe the statement that you are not a pro. Your sentiments about pollution control is just what it is all about.

MR. HEALY. Alderman Donald Ethier, also from Nashua.

STATEMENT OF DONALD L. ETHIER, ALDERMAN,
DISTRICT 1 OF NASHUA,
NASHUA, NEW HAMPSHIRE

ALDERMAN ETHIER. My name is Donald Ethier, Alderman in the city of Nashua and the Ward 1 District, which is basically to the far right of the yellow block all the way to the Massachusetts line.

Now, I live in that district which smells. As you come along the New Hampshire highway, the Route 3 bypass, you know you are in my area when you go by a shopping center and you drive over the Nashua River because it stinks; it is slimy and it is terrible. I am frank. That is the truth. I wish I could push it away and say, "Please, problem go away," but it is not going to go away very easily.

We are faced in Nashua with a very serious problem, and it is one in which I ask the General Court, the Legislatures, the Secretary of the Interior and this Committee to strongly urge that Federal funds be given to the State of New Hampshire.

Donald Ethier

I look at it from the Nashua point of view, and that is that our population has exploded from the 1960 census to what we project in 1970 wherein our population will increase approximately 30 percent. With this we have experienced the problems of a 121-room school addition every year, plus the additional classrooms for the other schools, because in the outlying areas we are having a tremendous growth; namely, in the Northwest part of the city and the Soutwest part of the city.

Now, we have a budget of $11 million a year. We are anticipating an outlay of approximately $25 million in securing a loan in the next five years.

Now, with this we have our budgeted or anticipated sewage treatment plant and the entire project is going to cost us between $16 million and $20 million.

Gentlemen, the dollars have got to come from somewhere. In all honesty, I don't know where they are going to come from.

Now, unless we get additional Federal aid and State aid through maybe a prefinancing program, I do not know how these projects are going to materialize.

Coupled with all of these, we have additional streets, firemen and policemen and these are services that are expensive. Along with the new schools we have the teachers that you have to pay and we are all experiencing the fact that teachers are looking for additional salaries.

Therefore, I ask all of you people who can do your little effort to exert that effort and see that both the State and additional Federal funds are made available to the city of Nashua.

You people, wherever you come from, I am sure you are here because you are sincerely interested and not because you are looking for something to pass the time. It is a serious problem and it is one that merits a lot of consideration. We are doing this not only for ourselves, but, hopefully, so that our children can benefit from this.

Therefore, I ask and humbly urge that everyone who can do their little effort do so, so that we can seek a good useful end to this entire program.

Thank you

CHAIRMAN STEIN. Thank you very much.

Are there any comments or questions?

(No response.)

CHAIRMAN STEIN. I would like to make a comment to all three. Someone has been following this rather closely and found out that what we were doing through the years as compared to the attitude now, the contrast is tremendous. Let's take, for example, the participation we had in the first Federal conference on the Androscogan. As I have pointed that out, the contrast is great, and whatever the differences we may have had between State and Federal authorities in the early cases have been the participation of municipal officials who have increasingly become aware of the problem, come to grips with it and given it some thought. This, in my opinion, is really what has made the difference.

However, I would like to call your attention to one fact that I see coming through here. You have heard this again and again. As we keep talking, construction costs keep rising inexorably. I remember we had a conference in a rather large city in Indiana and they were battling the State order. By the time they got through building the plant, it cost them double the original estimate of the contract. I am not deprecating anything about State or Federal funds. Here is the situation as I see it: Everyone in the cities and the industries should realistically look at what is happening and determine when it might be best to go forward. Too many times I have heard that we have to have Federal financing; we have to have State financing; we have to have State prefinancing. That all may be fine and

I cannot argue with it. But if you are going to wait and keep shaking that tree until that public money comes down, in the long run, it may cost you just as much fighting the rising-costs operation. Meanwhile you have lived your lifetime with the State, as you said.

When you talk about the long run, I think The Lord or Cain said, 'In the long run, we are all dead." In the short run, however, we all must recognize the kind of resources we have available and can reasonably expect, try to set up a realistic time schedule and requirements and get on with the programs, so that we can all do a little better job.

Are there any other questions or comments, Mr. Healy?

MR. HEALY. Before we go to Mayor Mongan of Manchester, there is one other gentleman here from Nashua that we want to hear from briefly. He happens to be a Commissioner of mine. He has been on the Commission since its inception in 1947, and that is Donald Calderwood from the Pennichuck Water Works of Nashua.

STATEMENT OF DONALD C. CALDERWOOD, MEMBER NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION, NASHUA, NEW HAMPSHIRE

Donald Calderwood

MR. CALDERWOOD. Mr Chairman, conferees, ladies and gentlemen, I believe that there is probably no one in this room that appreciates clean water and wants it anymore than I do. My main job is to provide water for the city of Nashua and its approximately 50,000 residents, and we are also being asked at the present time, in fact they are knocking on our door, for about three and a half million gallons a day for an adjoining town. So with the problems that go with such an operation, I think you realize that I do know what clean water means.

To substantiate Mr. Bouchard's statement regarding the tremendous growth in Nashua, the company I work for has been in business for 116 years. During those years they have spent a lot of money developing sources of supply, building dams, distribution systems and reservoirs, etc. But when you realize that within the last five years alone that they have doubled their net in-plant investment or had to double it to meet the demands, it shows you the tremendous growth in the Nashua area alone.

Now, the next statement that I am going to make probably will make me about as popular as a skunk at a lawn party, but that is that I feel that rather than the State going to prefinancing, the Federal Government should meet its obligations and come through with their portion of the grant.

Now, this money that we get from the Federal Government is not made by the wave of some magic wand. It is your money and mine that goes to Washington, and they send it back and let us use it.

I believe that if the State of New Hampshire is willing -- and they have proved that they are willing and able to do their proportionate part of funding these projects; the various communities are proving that they are willing, able and want to do their proportionate part in getting this cleared up – I think it is only fair that the Federal Government should take their part and come through with their Federal grants and funds as needed to meet the demand.

It is quite possible that by a change in the formulas or in some other way that these areas that are older sections of the country and have these larger amounts proportionately rather than population formula that is now used could be changed in some way so that we could get a greater portion for this particular area.

Thank you.

CHAIRMAN STEIN. Thank you, Mr. Calderwood.

I would like to take the opportunity to charade or those comments. I do not mean to pick on you, but I think we should at least make one statement for the record.

There has been a lot of talk from various participants about Federal obligation. I think most of you know that there is a Federal appropriation and an authorization. The fact that something is authorized does not mean it is appropriated.

I do not think that the Congressional members, or more particularly the members of the Appropriations Committee would consider or be in complete agreement with that word "obligation." This is not a contractural obligation. When you have a contractural obligation, in effect, you have a hunting license and you go out for it. If this were an obligation and we had an appropriation in the Federal Government for all the funds that were authorized it would probably shake your teeth, and I am not sure how happy you would be in New Hampshire or anywhere else.

So we have to recognize these limitations that we have in the Congress as well as anyone else.

MR. CALDERWOOD. If I used the wrong word, I apologize.

CHAIRMAN STEIN. No. No.

Let me make another point and I will make this clearly.

There is legislation coming up. As you know, it did not pass in the last Session. Maybe you want to do a lot of thinking on this, because we are limited in the Federal funds in the way we can distribute the money according to formulas specifically set out in the Federal formula.

Someone like me who has been observing the grants field for, oh, practically a whole career, I would not say that the Congress accepted the formulas which were recommended. You know when you recommend legislation every bright young boy thinks he can put out better legislation than anyone else. But there is a tendency, unless you get this formula tempered by, 1) population, 2) it seems to me financial need and 3) the extent of the problem - and these things have to be multiplied by each other and not just added on - you are going to get areas where you have sort of inequitable distribution. I don't want to get into the complicated grants field.

Now, there are many areas in this country that they, obviously, cannot use their grant funds -- they have too much allocation -- because either they don't have the problem or they have met it and maybe it is outside the continental limits, etc.

Now, this might be an idea: if what you people are saying about the kind of cut that you expect Vermont to get --

MR. CALDERWOOD. New Hampshire, please.

CHAIRMAN STEIN. New Hampshire. I am sorry. I understand the thing, the statement that your sister State may be getting too large a share of the pie compared to you, that is why that stayed in my mind. But I think if you are going to do that, you should pay very careful attention to the formula.

Now, I have one more tip on it on the basis of experience. When any formula is reached, what you should do is have someone run it through the list of States and see what your cut is going to be before you go along, because they can get very complicated. I do think you have a point on that. Thank you.

MR. HEALY. Mayor John Mongan, Manchester.

STATEMENT OF JOHN C. MONGAN, MAYOR
MANCHESTER, NEW HAMPSHIRE

MAYOR MONGAN. We are the third layer of government involved here. The regulations are made by the other two layers of government, and the position of the city of Manchester is quite simple: We will do what is expected of us with the money available.

Now, there is no great incentive for Manchester to invest its money in the Merrimack River. The area north of the dam is the only recreational area, and it is very interesting to read in the report that that is already safe for body contact and sports such as swimming and water skiing. The river below the dam is downhill and it is quite rocky. Whether the river is clean or dirty does not make much difference, because you are never going to go boating in that river anyhow. So it just goes back to that it is for the benefit of those downstream.

We wish to proceed with the engineering for our own reasons. That the engineering involving the Merrimack Mill Yard where we will have our retention basins, we want to know exactly where those retention basins will go and what size they will be. So Manchester is eager to proceed with the engineering.

In that regard, we offer to refinance the total engineering costs and found out from our Bond Council that we could not finance it by bond financing. The other thing was that Manchester had, in fact, bond financed engineering and so had the town of Lincoln, and we are going to look into that further to see what means they were able to do this.

In the meantime, we got down to contract negotiations of the engineering and it has become an impasse between the

State and the engineering firm. The city of Manchester is somewhat of a bystander here in that we feel that the State being one of the signers to the contract should do the negotiating, and with this impasse I would favor at this time that the Federal Government or some other agency step in at the request of both parties, I would hope, to help with the negotiations. Then we will be able to get back to our problem of prefinancing. I would hope that by the time that we get to the problem of prefinancing the bill is already introduced into the Legislature and that, perhaps, the State will pick up the prefinancing and relieve us of the problem of about whether we can legally or not bond the engineering.

Actually, the question of prefinancing the engineering I do not think holds up in particular the schedule, as outlined here, when it comes to the construction. The time for construction is still quite a ways away, and I would hope by that time that the Vietnam war is over and that the Federal funds come through on schedule.

Just one comment that I thought was quite interesting. Mr. Urie made the statement -- I do not know if it is accurate or not -- that the State would raise its share from 40 percent to 50 percent. The way we have it figured now, we get 40 percent from the State and all the other benefits being in the regional plan and the Federal share being 55 percent, with Mr. Uries additional 10 percent we will be making 5 percent. We are all for it.

CHAIRMAN STEIN. Are there any comments or questions?

(No response.)

CHAIRMAN STEIN. You know, there is a favorite Washington story about three fellows who went to lunch and one fellow said, "You know, you better let me pick up that check. I am in the 50 percent bracket." Another guy reached over and said, "Oh, don't you pick it up." He said, "You know, I am in the 90 percent bracket. It will just cost me a dime on the dollar to pay this." The third guy said, "Both of you fellows stop that. I have a Cost Plus contract with the Government and I will make six percent."

(Laughter.)

CHAIRMAN STEIN. Thank you.

MR. HEALY. The next man is a well known conservationist in the State of New Hampshire, John Dodge, who was so helpful in the last session of the Legislature in the advance of water pollution control. John.

STATEMENT OF JOHN E. DODGE, COORDINATOR, NEW HAMPSHIRE COMMITTEE FOR BETTER WATER, CONCORD, NEW HAMPSHIRE

MR. DODGE. Mr. Chairman, conferees, ladies and gentlemen, some of the remarks which I have prepared here have been answered by Mr. Stein already, but I will still read the prepared statement.

My name is John E. Dodge and I am a coordinator for the New Hampshire Committee for Better Water. We are a committee of the New Hampshire Natural Resources Council and includes more than a dozen State-wide organizations, a large number of local organizations such as conservation commissions and planning boards and many others, and more than 350 individuals. Actually, this amounts to reaching many thousands of people of the nature of these State-wide organizations with whom we correspond.

We attempt to serve as a two-way channel of communication between our members, on the one hand, and the Legislature, the Congress and appropriate departments of State and Federal Government on the other.

The Committee for Better Water has consistently supported and continues to support the standards for water quality and program for pollution abatement recommended by

John Dodge

our Water Supply and Pollution Control Commission, and enacted by our Legislature in the last session as Senate Bill No. 83. We have gone along with the commitments made by this Commission and by the State's administration to seek specific additional legislation in the 1969 session to further tighten and advance the control program on the Merrimack watershed. Our Steering Committee has agreed to support the principle of State prefinancing for secondary treatment plants where these will be required.

As I have said, we try to listen to both sides and to be realistic in our recommendations. We feel that any attempt to go faster than the program of abatement endorsed by out Commission would bommerang, unless and until there is a substantial increase in Federal funding.

We believe that it should not only live up to the commitments originally endorsed by the Congress, but it should give New Hampshire parity with her sister State, Vermont, in terms of Federal dollars provided for the work each has to do to accomplish her approved program.

Our Legislature has a fine record of supporting an orderly series of steps toward pollution abatement, but there are limits beyond which it cannot be expected to go this year. To attempt to exceed these might well result in no increase at all in the coming session.

Thank you very much.

CHAIRMAN STEIN. Are there any comments or questions?

(No response.)

CHAIRMAN STEIN. If not, thank you very much.

MR. HEALY Before we go to the next person who wants to speak, I merely want to identify my most recent Commissioner, Mr. Richard Buck of Hancock and who has now been appointed to the Commission within the last few days to represent the vacation home or private recreation sector of our economy. Mr. Buck also is identified with conservation activities. He is well informed in the field. He is associated with Trout Unlimited and a number of other worthy enterprises, and we are very fortunate, we believe, to have him with us.

Will you simply stand up so they can see you.

(Commissioner Buck arose.)

MR. HEALY. The next individual I would like to ask to come forward is Vice President and Chief Engineer of the Public Service Company of New Hampshire, Eliot Priest. His firm has been doing, as he will expand and tell us in greater detail, a great deal of work in the field of thermal pollution activities.

STATEMENT OF ELIOT PRIEST, VICE PRESIDENT
AND CHIEF ENGINEER
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
MANCHESTER, NEW HAMPSHIRE

MR. PRIEST: Thank you.

Mr. Chairman, members of the Conference, ladies and gentlemen, my name is Eliot Priest and I am Vice President of Public Service Company of New Hampshire. I am responsible for the Company's Engineering projects, both from a standpoint of planning and of construction. I appear before you today because natural resources such as the Merrimack River are an integral part of a utility's engineering projects.

Before speaking with you about the river, however, I believe this agency should know a little about Public Service. Basically, the Company generates, transmits and distributes electric power for nearly 200 New Hampshire communities. In addition, we provide electricity at wholesale for resale to several other electric companies and agencies in New Hampshire. In total, we furnish electric power to more than 200,000 homes and businesses, or about 90 percent of the Granite State. Obviously, we have tremendous responsibility to those dependent upon us for their electricity and we make every effort to provide them with the best possible service.

It follows, then, that Public Service has a vital interest in the subject of this public hearing, not only because the Company has thermal and hydro generating plants on the Merrimack River, but also because the Company believes that an orderly abatement of misuse of the river is in the best interest of the public. Only when this has been accomplished can the river serve the majority of the citizens of New Hampshire. We further believe that only with the cooperation of all users of the river will its value as a natural resource to meet the needs of modern society be maintained. By this we mean that all uses of this natural water resource must be evaluated in terms of the total needs of the State citizens and industries.

The river serves many purposes. For Public Service it provides electric energy to meet the ever-increasing demand for electric power in New Hampshire. The Company has three hydro plants along the Merrimack located at Garvins Falls near Concord, Hooksett and Amoskeag Falls in Manchester. It also provides a source of cooling water for the stream condensers for two thermal generating units at the Merrimack Station in Bow, and one in Manchester.

Eliot Priest

The basic point of discussion that we wish to bring before this hearing has to do with the release of heat to the river as a result of passing cooling water through the thermal plants known as Merrimack I and Merrimack II in Bow.

The first unit at this station was constructed in the period 1957 through 1960 and placed in service in late 1960. Its rating of 120,000 kilowatts requires that approximately 59,000 gallons of water per minute pass through the condenser with a temperature rise through the condenser of 20 degrees to 25 degrees Fahrenheit. In 1964 it was decided to erect a 350,000 kilowatt unit at this site known as MK-II which, when operating at full load, would pass about 140,000 gallons per minute through the condenser with a similar temperature rise.

In discussions held with the New Hampshire Water Pollution Commission and the New Hampshire Fish and Game Department in 1965, it was pointed out by them that an adverse effect might take place by releasing this heated water to the river. After several conferences, it was decided that neither the New Hampshire Water Pollution Commission nor the New Hampshire Fish and Game Department had sufficient data to know whether the release of the heat to the river would be detrimental. As a result, it was decided to undertake a joint study of the river ecology by the two State groups and Public Service. Public Service retained the Institute for Research and Services at St. Anselm's College to assist in making the study and for interpretation of its results.

The plans were formulated so that actual field data would be gathered during the summer and fall of 1967 using the heat as released by MK-I, which had been operating since 1960 without any apparent adverse effect on the river, as a natural laboratory. It was agreed that all data collected would be made available for review and interpretation by all participants. The New Hampshire Fish and Game Deparment assigned a biologist to the job on a full-time basis during the months the study was in progress. They also provided the necessary boats and other miscellaneous equipment required for taking an in-depth population and specie study of the fish in the river. Public Service provided all other manpower, which included five summer students, a supervisor and staff of the Institute for Research and Services assigned to the project. In addition, Public Service supplied nets for catching fish, and metering and sensing equipment for measuring temperature, dissolved oxygen and many other organic and chemical parameters.

Eliot Priest

A repeat of the study of 1967 was made during 1968 inasmuch as MK-II, the second unit, was placed in service in May of this year.

To provide continuous monitoring, Geodyne digitizing equipment was installed to provide temperature and dissolved oxygen readings on a 24-hour basis. Readings were recorded every 30 minutes at a station located above the intake to the plant, one at the point of discharge into the river and another two to three miles downstream. Supplementing this data, spot readings were taken to completely profile the river. Complete chemical and biological samples were taken each of the two years to determine the complete ecology of the river.

The total investment for both labor and materials to date by Public Service is $92,900. In addition, several thousands of dollars have been expended by the State, making a total cost of the project to date at least $100,000.

To explain in detail the vast coverage of the study would take too much time; however, several points can be made at this hearing that are extremely important and should be considered:

1. This study is the most comprehensive study ever performed on the Merrimack River, and no definite

conclusions by the Interstate, Federal, or State Commissions should be drawn without careful review of this data.

2. The study covers many aspects of the river other than thermal, and these are of extreme importance.
3. The study can be of significant use in evaluating other rivers having similar characteristics.
4. The data collected has not been fully analyzed and no conclusions as to the effects of heat release upon a river should be drawn without full analysis of this large amount of data.
5. For study purposes, the river had an excellent flow pattern during 1968. Both high and low flows were experienced as well as very high, ambient temperatures. It might be added that the river in its natural state had temperatures as high as 33 degrees to 84 degrees Fahrenheit thereby clearly establishing it as a warm-water fishery. This was fully supported by the fish catch conducted by the New Hampshire Fish and Game Department. Over 15,000 fish were caught and tabulated over the past two years, and the species caught clearly established the river as a warm-water fishery.

Eliot Priest

6. It becomes rather apparent that arbitrary standards can severely penalize users of the river. Much has been written about allowable temperature rises and mixing zones. This study can demonstrate that there is no such thing as a mixing zone in a free flowing river unless mixing is forced in some manner. This one point is of sufficient significance to indicate that careful consideration must be given to all data collected before valid basic conclusions can be drawn.

Public Service Company of New Hampshire, as stated earlier, is interested in and committed to the proper development of the State natural resources. However, the Company believes strongly in basing controls and criteria on facts, as demonstrated by the Company's willingness to expend large sums of money to obtain the facts. It stands prepared to spend additional funds to reduce the effect of heat upon the river if, after careful study, it can be determined that such discharge does cause a change in the river to the degree that it prevents other desirable uses of the river. It agrees with the New Hampshire agencies responsible for the river's control that if the Merrimack by some means can support Atlantic salmon, shad, or cold water trout, it will take whatever steps are required to reduce the effect of the heat released to the river so that these uses can go forward.

In essence, we request that final conclusions pertaining to thermal releases be held up pending the full review of the vast amount of data collected. We specifically wish to reserve the right to file a copy of our Findings with your agency to be incorporated as part of this statement. We believe this work can be completed within six months.

Thank you very much.

CHAIRMAN STEIN. Thank you, Mr. Priest. You know, I knew that would come up sooner or later. I knew this question would come up sooner or later. I guess what Mr. Priest is proposing is that we put monitors on the Merrimack before we come up with ironclad requirements.

(the above-mentioned Findings, to be furnished for the record, will be marked Exhibit 2 and be on file at the Northeast Regional Office and FWPCA Office, Washington, D.C.)

Any questions or comments?

MR. KLASHMAN. Mr. Priest, what was the temperature that you said - the temperature rise?

MR. PRIEST. We actually said that the actual ambient temperature, meaning the natural state of the river, was as high as 83 or 84 at the highest point.

MR. KLASHMAN. Going through the condensers?

MR. PRIEST. Twenty to 23 degrees rise in the condensers.

CHAIRMAN STEIN. Any other comments or questions?

(No response.)

CHAIRMAN STEIN. Thank you very much.

MR. HEALY. We are approaching the end of the New Hampshire people that wish to make a statement. There are just two more.

The first one is Mr. John Henchey, the City Manager for Concord.

STATEMENT OF JOHN E. HENCHEY, CITY MANAGER, CONCORD, NEW HAMPSHIRE

MR. HENCHEY. Mr. Chairman and members of the Conference, this statement is quite brief and I think it does clearly state our feeling in regard to the water pollution and the abatement of pollution in the Merrimack River and in Concord.

The city of Concord is, and has for some time, been fully aware and concerned about the pollution of the

John Henchey

Merrimack River. Presently Concord expects to sign an agreement with the town of Boscawen which would encompass planning and eventual construction of a $3 million sewage treatment facility in the Penacook area of Concord. In fact, the city of Concord has already entered into an agreement with its consultants for the plans and specifications of this plant pending the signing of an agreement between the two communities.

With the availability of State and Federal funds Concord and Boscawen are prepared to move forward immediately with this project. Once this Concord-Boscawen treatment facility has been funded to the extent that the State and Federal programs now provide, Concord would be in a position and would be willing to have the plans and specifications for the $8 million main Concord sewage treatment facility drawn up and submitted for approval to the necessary agencies. With the completion and approval of these plans and specifications, Concord will be prepared to enter into the construction phase of this second and final project when State and Federal funds are made available.

At the risk of being repetitious, I would like to reiterate that implementation of the $11 million sewage abatement program depends on the availability of State and

Federal funds.

In addition to this, I would like to say two things:

First, I think Concord is fully aware of the fact that primary treatment is most essential and would like to have secondary treatment set off until such time as primary treatment was completed on most of its streams.

Secondly, I have already projected this cost to $11 million when completed, and had we been in position to construct these facilities a year or two ago the cost would have only been $8 million.

Thank you.

MR. KLASHMAN. $11 million is now for secondary treatment?

MR. HENCHEY. It would be proposed for both forms of treatment, yes. I could stand to be corrected.

MR. KLASHMAN. I think that is correct. Thank you.

MR. HEALY. The last speaker that I am aware of is Mrs. Selwyn Taylor of Nashua who speaks for the League of Women Voters and who has also been, in previous legislative sessions, very much interested in pollution control.

STATEMENT OF MRS. SELWYN TAYLOR, CHAIRMAN,
WATER RESOURCES COMMITTEE,
LEAGUE OF WOMEN VOTERS OF NEW HAMPSHIRE,
NASHUA, NEW HAMPSHIRE

Mrs. Selwyn Taylor

MRS. TAYLOR. Mr. Chairman, members of the United States Department of the Interior, the New England Interstate Water Pollution Control Commission, the Massachusetts Department of Natural Resources and the New Hampshire Water Supply and Pollution Control Commission, I am Mrs. Selwyn Taylor, Chairman of the Water Resources Committee of the League of Women Voters of New Hampshire.

We wish to thank Mr.Healy for the invitation to be here today to express some of our views on the pollution abatement program for the Nashua and the Merrimack Rivers.

For some time now, the League of Women Voters of New Hampshire has been concerned about the condition of the Merrimack and Nashua Rivers. We believe it is evident from the testimony at the hearings on the subject of pollution in our State that the people of New Hampshire want to be able to use the waters in these rivers for various recreational pursuits.

For the most part. the League feels that water quality standards as proposed by the New Hampshire Water Supply and Pollution Control Commission and approved by the 1967 New Hampshire Legislature show consideration of the expressed desires of those people who are concerned with obtaining the highest quality water to allow maximum use of the rivers. There are a few areas where the League would have liked to see higher standards set. However, we feel that for the present the goals are realistically attainable. We shall hope to have an opportunity in the future to work toward further improvement in these areas.

Nashua, for instance, has indicated that they would like to create a recreation area along part of the Nashua River and would like to be able to permit swimming in this area at some future date. We understand that this will require higher quality standards of water in the Nashua River from Massachusetts and also possibly further treatment than planned at Nashua. We believe that in order to attain the standards presently set for the Merrimack River it is imperative that there be secondary treatment in the larger communities. We feel that planning of secondary treatment facilities, and construction wherever feasible, should be done simultaneously with the work on the primary facilities. This should be more economical in planning costs and, with the rising costs of construction, there should be considerable savings over the long term by completing the task as quickly as possible.

Financing, it seems, is the biggest factor looming behind the reluctance of some of the New Hampshire communities to proceed as quickly as they should toward adequate waste treatment. It is extremely unfortunate that just at the time when New Hampshire communities were ready to proceed with pollution abatement Federal funds for the purpose were so very limited. It is also unfortunate that the demands for services -- for example, funds -- in most areas at the State level seem to far exceed anticipated revenues. However, we think that the 1969 New Hampshire Legislature, when faced with the reality of the situation as regards the needs for pollution abatement funds, will certainly approve prefinancing at the State level to allow New Hampshire to proceed more quickly toward completion of its abatement program. We believe that the funds to do the job can be found. They have been found in other States.

The Pollution Control Commission in our State has accomplished much, hampered by two major obstacles: the lack of both State and Federal funds and also the slowness of many communities in getting on with the task.

The State contribution is 40 percent towards construction costs of approved municipal waste treatment plants. We feel this is very generous.

Coupled with the Federal share of 40 to 50 percent, the burden on the communities is considerably less than in many other States. But the actual amounts appropriated at the Federal and State level are not sufficient to enable all communities to proceed with construction. Thus, there has been no great pressure on the communities to move quickly. Our Pollution Control Commission is also hampered by the lack of State funds for adequate personnel to do the State share of the task. The communities, too, seem reluctant to commit themselves to a large expenditure of money.

The solution to these problems has been to spread construction and costs over several years as funds can be expected to be available. The League feels that the urgency of the problem requires a more rapid solution.

New Hampshire has been faced with the problems of pollution as long as other States. It is embarrassing that our plans to alleviate the problems lag so far behind.

With a prefinancing plan to provide the Federal share of funds to the community until such time as Federal funds are available for reimbursement, which we surely hope is soon, and with adequate funds appropriated now for the State share of the costs, we think New Hampshire could expect full cooperation from the communities towards real progress at an early date. Communities with serious financial problems could request further assistance from their industries to ease the burden. They should certainly expect their industries to pay their share of the costs they create.

The people of New Hampshire have indicated that they want the Merrimack and New Hampshire rivers cleaned up quickly. Massachusetts people have demonstrated that they intend to do their share. We feel New Hampshire has a clear duty to do its share at a faster pace than originally planned. The job needs to be done and done quickly. We feel New Hampshire can find the means to do it at the State and local level.

If the cities of Lawrence and Lowell on the Merrimack in Massachusetts can find the means to complete their task in 1973, it would certainly seem that any New Hampshire city on the Merrimack could find the means to move faster than planned to meet the required standards. We would think that the two Massachusetts cities would have a legitimate complaint at completing their construction yet having to receive New Hampshire wastes for several additional years. Their uses of the river would be limited for a longer period of time in spite of their own efforts.

Our task in New Hampshire seems to be to speed construction with prefinancing and more State funds now to give our Pollution Control Commission the means to urge local communities to comply. We urge full commitment at the State level. We feel this commitment can be met. Full Federal funding is also needed urgently and we look forward to considerable increases in Federal appropriations in the future.

We are confident that New Hampshire will accept its responsibilities to the people of neighboring communities and to its own people by providing the means and the plans to attain suitable standards at an early date.

Thank you.

CHAIRMAN STEIN. Thank you, Mrs. Taylor, for a very excellent and comprehensive statement.

MRS. TAYLOR. Thank you.

CHAIRMAN STEIN. Are there any comments or questions?

(No comment.)

CHAIRMAN STEIN. If not, thank you.

Would you come up and let us have your name for the Reporter.

STATEMENT OF DONALD C. CALDERWOOD, MEMBER, NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION, NASHUA, NEW HAMPSHIRE

MR. CALDERWOOD. Donald Calderwood of Nashua. As a member of the Nashua Water Supply and Control Pollution Commission, I think we should recognize the fact that New Hampshire can hold its head high among other States as far as the Commission is concerned and the progress it has made during the some 20 years it has been in existence. I do not wish to take issue with my fellow townsman regarding her statement, but if I understood her remarks correctly, I obtained the inference, at least, that New Hampshire was lagging behind other States. If I am in error, I apologize. If I am not, I would like to have the statement corrected.

MRS. TAYLOR. I was referring to time rather than money.

MR. HEALY. Are there any others from New Hampshire that would like to offer some remarks?

STATEMENT OF SHELDON MORRILL, CITY COUNCIL, FRANKLIN, NEW HAMPSHIRE

COUNCILMAN MORRILL. My name is Sheldon Morrill. I am a Councilman from the city of Franklin.

It is a city at the confluence of the Pemigewasset and Winnipesaukee, a city of about several thousand population.

The city of Franklin saw fit to meet their obligation when this Clean Water Act and State legislation was passed.

We have gone ahead and have a final planning and engineering completed at this date. The city is waiting at this time for the necessary funds from the State and Federal Government.

Now, once you have sold the people of a city on a program, whether the Federal Government is obligated or not to these funds, the people have been sold that the Federal Government has certain participation and the State has a certain participation. The city has gone ahead and met their obligations, and then the program is set on a table and it is laying dormant.

So now the city officials, as they are re-elected, had to go back and resell their community on their obligations over and over again, whether the Federal Government is obligated or otherwise.

I think that the Federal representatives here see the problem that the city officials have by letting these programs lay dormant. The time to act is when the initial program is incorporated, State and Federal, and get the people interested and go along. We have done this in Lincoln and now the interest is to let's stay there and wait and see what happens to this Federal funding.

CHAIRMAN STEIN. Are there any comments or questions?

(No response.)

CHAIRMAN STEIN. Are there any others?

MR. HEALY. No, sir.

MR. KLASHMAN. Could I ask you, Mr. Morrill, the grant that you are talking about, the funding, is that a H.U.D. project that you are talking about?

COUNCILMAN MORRILL. No. This is a regular water pollution grant.

MR. HEALY. No. 661?

COUNCILMAN MORRILL. Yes.

MR. HEALY. Clarence can tell you, if you want to know, the details of just what has transpired at Franklin and when it may be financed under certain circumstances. I know they have completed their planning.

MR. METCALF. I think this is not going to be this next year but the year after. I believe it is in 1970.

CHAIRMAN STEIN. Is that a State priority?

MR. METCALF. Yes; that is, our priority which we have established.

CHAIRMAN STEIN. I recognize your problem and your remarks are very pertinent. However, again, we do have this provision in the Federal law and this is one that I think is a good one. The priority for going with the project rests with the State. Like many other things, you may look for a panacea if you want from the Federal Government, but the best way that we can really set the priority is have the States and localities within that State work it out themselves.

Now, as far as I know, the New Hampshire priority system is a completely equitable one. Again, looking at the other programs throughout the country, obviously -- and this would deal with any program, and I want to make this clear -- unless we had all the money in the world, if you have more applications than there are moneys available, someone is going to have to set the priority. This is something we just have to really live with.

With that, let us recess for lunch and let us try to be back at two o'clock.

(Whereupon the Conference recessed until 2:00 p.m.)

AFTERNOON SESSION

CHAIRMAN STEIN. Let us reconvene.

May we call upon Massachusetts. Mr. McMahon.

STATEMENT OF THOMAS McMAHON, DIRECTOR,
WATER POLLUTION CONTROL,
MASSACHUSETTS WATER RESOURCES COMMISSION,
DEPARTMENT OF NATURAL RESOURCES
BOSTON, MASSACHUSETTS

MR. McMAHON. Mr. Chairman, the Massachusetts presentation, with your permission, will be two different categories. I will begin and Mr. Cassaza, Supervising Engineer, will follow.

Mr. Chairman, ladies and gentlemen. My name is Thomas McMahon. I am Director of the Water Pollution Control, under the Massachusetts Water Resources Commission, in the Department of Natural Resources. Our agency was created under Chapter 685 of the Acts of 1966 with the responsibility of enhancing the quality and value of the water resources of the Commonwealth and to establish a program for the prevention, control and abatement of water pollution.

Three companion pieces of legislation provided for a State bond issue of $150 million to assist cities, towns and districts in the construction of waste treatment facilities and two tax inducement provisions for industries constructing their own treatment works.

Since the passage of these Acts, Massachusetts has adopted standards of water quality in all interstate, intrastate and coastal and marine waters. The interstate portions have been approved by the Federal Department of the Interior, thus making these Federal standards as well as State and providing to this State the maximum Federal grant percentages on eligible projects throughout the Commonwealth.

An implementation schedule for corrective action has been established for some 230 industries and 130 communities within the State, and Letters of Intent indicating willingness to comply have been received from 95 percent of those contacted. The total estimated price tag on a Statewide basis is estimated at $1/2 billion with approximately one-half to be cost-shared by the Federal Government, one-quarter by the State and the remaining one-quarter by local financing.

During the past fiscal year, Chapter 21 of General Laws, which encompass the previously referred to Acts of 1966, was amended by Chapter 873 of Acts of 1967 and Chapters 611 and 648 of the Acts of 1968. The major features of these amendments are as follows:

1. Clarifying amendments to allow the Division to

Give construction grants to cities, towns and districts from the $150 million bond issue authorized in 1966.

2. A prefinancing clause to allow the State to advance moneys to cities, towns and districts in anticipation of future Federal reimbursements and to advance up to 7 percent of the total estimated construction cost of eligible projects for the preparation of final plans and specifications.

3. An oil pollution control act to permit this Division to contract with private organizations to clean up oil spills on an emergency basis, to issue rules and regulations for protection of the Commonwealth waters, to license all oil terminals and to establish a permit system for waste oil collectors.

4. A scholarship and intern program to attract outstanding high school graduates into the field of Sanitary Engineering. This Act provides free room, board and tuition to candidates who will work summers for the Division and to be employed for three years with the Division upon graduation.

From January 1968 to June of 1968 the Division has obligated the authorized maximum of $15 million for State grants in aid to communities and districts including the prefinancing of some $4 million of State funds in anticipation of future Federal reimbursements. It is anticipated that this

Thomas McMahon

will continue in this fiscal year without materially affecting the implementation schedules for corrective action throughout the State. Nevertheless in looking toward the future, if Federal cutbacks in grant appropriations are continued beyond the current and next fiscal year, the Massachusetts program, as well as many other States programs, will more than likely be slowed down.

This statement is based on an elementary mathematical analysis of the costs involved in our implementation program which features a number of major projects coming due in the next two or three years. We have communities such as Lowell, Lawrence, the Greater Fitchburg area, Worcester and other South Essex sewerage districts, many of these projects ranging anywhere from $16 to $18 million apiece up to $30 million.

The State is limited to expending only $15 million in one year, so it is fairly simple from a mathematical basis to understand that we will need additional Federal moneys. It may well even be necessary that we will have to go back to our own Legislature for additional grants funds.

We can prefinance. As you can well imagine, when you get into $30 million projects, the prefinancing clause will wipe out in one project the entire money allotted for one particular year.

Thomas McMahon

Much has been said here today on the lack of Federal funds. I would like to make one point clear insofar as Massachusetts is concerned. We are insisting that all municipalities and industries, regardless of the anticipated shortage of Federal and State funds, go all the way through the preliminary planning stage and also the final plans. Remember if they have accomplished this and it comes to pass there is not State or Federal money available, that is something else. But, in our opinion, there is no excuse for anybody not going right through the final planning stage in municipalities. Of course, we finance the 70 percent of the plans and specifications as well.

Regarding the Merrimack River Basin, on the Merrimack we have established a schedule for 14 municipalities, 38 industries, 1 miscellaneous, for a total of 53. Out of this total of 53, 45 have indicated they will comply, 36 are presently on schedule, 2 are under Consent Orders and 1 is under an order.

Under the Nashua River the schedule includes 2 municipalities, 23 industries, 1 miscellaneous and a total of 26. Nineteen of these intend to comply, 23 are on schedule and 2 are presently under Consent Orders.

Consent Orders, just for a brief explanation, the civil portion of our law requires that prior to issuing an administrative order we have to hold what we call an adjudicatory hearing. This, many times, can be somewhat cumbersome, so we invite the polluter in and have a pre-hearing conference upon presentation of evidence that indicates that they are polluting.

Now, we request them to sign what we call a Consent to Order or Consent Decree.

What this essentially does is waive the right to a public hearing by the particular polluter and has essentially the same effect as holding the hearing by the issuance of an Administrative Order.

In conclusion, I would like to emphasize that Massachusetts has an on-going progressive program of financing and enforcing water pollution control on a State-wide basis. It is a program to enhance the quality of water within our own State and to render waters flowing into neighboring States of a quality satisfactory to the agreed-upon classifications of the signatory States and approved by the New England Interstate Water Pollution Control Compact.

It is important that the progress and momentum of the past two years be amplified in the years to come in order to provide the necessary water quality improvements reflected in our standards of water quality goals and needed so badly by future generations.

Thank you.

CHAIRMAN STEIN. Thank you, Mr. McMahon.

Are there any comments or statements?

MR. McMAHON. Mr. Chairman, I might suggest letting Mr. Cassaza go ahead with the second part of our presentation Then we will be happy to answer any questions.

MR. KLASHMAN. I would like to wait until Mr. Cassaza is done.

STATEMENT OF JOHN B. CASSAZA
SUPERVISORY SANITARY ENGINEER
DIVISION OF WATER POLLUTION CONTROL
MASSACHUSETTS DEPARTMENT OF NATURAL RESOURCES
BOSTON, MASSACHUSETTS

MR. CASSAZA. Mr. Chairman, I am John Cassaza from the Division of Water Pollution Control in the State of Massachusetts.

I have here the Implementation Schedule for the Merrimack River and for the Nashua River. I would like to submit this schedule to the Commission as if read. I would further like to make certain comments on this schedule.

(the above-mentioned schedule follows.)

A

MASSACHUSETTS DIVISION OF WATER POLLUTION

MERRIMACK

Location & Name	Implementation Schedule		Enforcement		Engineer Selected		Grant Application		Preliminary Report & Plan		Appropriati of Funds		Acquisi of Sit
	Sent	Ackd.	Hearing	Date	Name	Date	Rec'd.	Appr'd	Sch.	Act.	Sched.	Act.	Sched.
AMESBURY													
Municipal									7/68		8/68		9/68
Amesbury Tanning									9/68				
Amesbury Fibre									9/68				
Amesbury Specialty									9/68				
Amesbury Metal Prod.									9/68				
Merrimack Hat									9/68				
ANDOVER													
Municipal									2/68		4/68		5/68
CHELMSFORD													
Municipal - Project #1											2/68		4/68
Municipal - Project #2											2/69		
Gilet Wool Scouring									7/68				
Southwell Combing									7/68				
DRACUT													
Municipal									4/1/70		6/1/70		7/1/70
J. P. Stevens									12/68				
GROVELAND													
Municipal									10/68		12/68		2/69
HAVERHILL													
Municipal - Project #1									1/69		8/67		1/69
Municipal - Project #2											3/70		
Continental Can									6/68				
Cowan & Shain									3/68				
L. H. Hamel Leather									3/68				
Haverhill Plating									3/68				
Hoyt & Worthen Tannery									3/68				
C. F. Jameson									3/68				
Gare Ceramics													
LAWRENCE													
Municipal - Project #1											12/68		
Municipal - Project #2													
Agawam Dye Works													
Lawrence Wool Scouring									3/69				
The Mead Corp.													
Merrimack Paper													
Oxford Paper													

B

ary Plans	Appropriation of Funds		Acquisition of Site		Final Plans		Construction Started		Construction Completed		Remarks
t.	Sched.	Act.	Sched.	Act.	Sched	Act.	Sched.	Act.	Sched	Act.	
	8/68		9/68		5/69		6/69		6/70		
					5/69		6/69		6/70		
					5/69		6/69		6/70		
					5/69		6/69		6/70		
					5/69		6/69		6/70		
					5/69		6/69		6/70		
	4/68		5/68		1/69		3/69		3/70		
	2/68		4/68		2/69		4/69		4/71		
	2/69				2/70		5/70		5/71		
					2/69		4/69		4/70		
					2/69		4/69		4/70		
	6/1/70		7/1/70		7/1/71		9/1/71		11/1/72		
					2/70		6/70		6/71		
	12/68		2/69		12/69		3/70		3/71		
	8/67		1/69		1/70		4/70		4/72		
	3/70				3/71		7/71		7/72		
					3/69		7/69		7/70		
					3/69		7/69		7/70		
					3/69		7/69		7/70		
					3/69		7/69		7/70		
					3/69		7/69		7/70		
					3/69		7/69		7/70		
					4/69		5/69		6/69		
	12/68				1/70		6/70		6/72		
					1/71		7/71		7/73		
							6/70		7/73		
					3/70		6/70		7/73		
							6/70		7/73		
							6/70		7/73		
							6/70		7/73		

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MASSACHUSETTS DIVISION OF WATER POLLUTION

MERRIMACK

Location & Name	Implementation Schedule		Enforcement		Engineer Selected		Grant Application		Preliminary Report & Plans		Appropriation of Funds		Acquis of S
	Sent	Ackd.	Hearing	Date	Name	Date	Rec'd.	Approv'd	Sch.	Act.	Sched.	Act.	Sched.
LOWELL													
Municipal - Project #1											12/68		3/69
Municipal - Project #2											12/68		
Ames Textile Corp.													
Byfield Felting													
Commodore Foods													
United Elastic Corp. Conant Houghton Div.													
Jean Alan Products													
Lawrence Mfg. Co.													
Middlesex Worsted Spinning													
Pellon Corp.													
Robinson Top Yarn & Dye Works													
Suffolk Knitting													
Vertiple Inc.													
MERRIMAC													
Municipal											3/69		
Merrimac Metal Finishing													
METHUEN													
Municipal - Project #1											12/68		11/67
Municipal - Project #2											9/67		
Essex Chrome Plating									3/68				
Methuen International Mills													
Rex Potato Chip													
NEWBURYPORT													
Municipal									10/69		12/69		
NORTH ANDOVER													
Municipal									2/68		12/68		5/68
Western Electric									2/68				
Wipex, Inc.													
SALISBURY													
Municipal									6/30/69		10/31/69		10/31
Salisbury Water Co.									6/69		7/67		9/67
TYNGSBORO													
Municipal									12/69		3/70		5/70
WESTFORD (Forge Village)													
Murray Printing Co.													

Appropriation of Funds		Acquisition of Site		Final Plans		Construction Started		Construction Completed		Remarks
Sched.	Act.	Sched.	Act.	Sched	Act.	Sched.	Act.	Sched	Act.	
12/68		3/69		1/70		6/70		6/72		
12/68				3/71		6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
						6/71		6/73		
3/69				4/70		7/70		7/71		
										Connected to municipal system
12/68		11/67		1/70		6/70		6/72		
9/67				1/71		4/71		12/72		
				1/69		4/69		4/71		
										Connected to municipal system
										Mill closed June 1966
12/69				2/71		4/71		4/72		
12/68		5/68		1/70		6/70		6/72		
				1/69		3/69		3/70		
						6/68		9/68		
10/31/69		10/31/69		12/70		4/71		4/72		
7/67		9/67		6/68		7/68		7/69		
3/70		5/70		12/70		4/71		4/72		
										No discharge subsurface disposal

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MASSACHUSETTS DIVISION OF WATER POLLUTION

MERRIMACK

Location & Name	Implementation Schedule		Enforcement		Engineer Selected		Grant Application		Preliminary Report & Plans		Appropriation of Funds		Acqu of
	Sent	Ackd.	Hearing	Date	Name	Date	Rec'd.	Approv'd	Sch	Act	Sched.	Act.	Sched.
NEWBURYPORT													
The Chase Shawmut Co.									3/69				
Towle Silversmiths									3/69				
SALISBURY													
Allen Drive Subdivision													

ary Plans	Appropriation of Funds		Acquisition of Site		Final Plans		Construction Started		Construction Completed		Remarks
Act.	Sched.	Act.	Sched.	Act.	Sched	Act.	Sched.	Act.	Sched	Act.	
					9/69		11/69		5/70		
					8/69		10/69		5/70		
					5/69		6/69		8/69		

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MASSACHUSETTS DIVISION OF WATER POLLUTI

NASHUA

Location & Name	Implementation Schedule		Enforcement		Engineer Selected		Grant Application		Preliminary Report & Plans		Appropriation of Funds		Acq of
	Sent	Ackd.	Hearing	Date	Name	Date	Rec'd.	Approv'd	Sch.	Act.	Sched.	Act.	Sched
FITCHBURG													
Municipal									8/68		10/68		
Falulah Paper									8/68		7/18/68		
Fitchburg Paper									8/68				
Simons Saw & Steel									8/68				
Weyerhauser-Crocker Burbank									8/68				
GROTON													
Groton Leatherboard									3/69				
Hollingsworth & Vose									3/69				
LANCASTER													
Atlantic Union College									2/68		4/68		5/68
LEOMINSTER													
Borden Inc.									12/68				
Foster Grant									8/14/68		8/29/68		
PEPPERELL													
Municipal									2/70		4/70		6/70
Bemis Company, Inc.									3/69				
St. Regis Paper									3/69				
FITCHBURG													
Great American Plastic Corp.									4/69				
The Jennisen Company													
Art Photo Service, Inc.									4/69				
Fitchburg Gas & Light Co.									4/69				
Hedstrom Associates									4/69				
Vogue Wall Coverings, Inc.									4/69				
Iver Johnson Co.													
Wachusett Potato Chip Co.									6/69				
Independent Lock Co.(ILCO Corp)									6/69				
LUNENBURG													
Rogers Brothers									4/69				
WESTMINSTER													
The Old Mill Restaurant									4/69				
Advance Coatings Inc.									4/69				
Decotone Products Div., Fitchburg Paper Co.									4/69				

Appropriation of Funds		Acquisition of Site		Final Plans		Construction Started		Construction Completed		Remarks
Sched.	Act.	Sched.	Act.	Sched.	Act.	Sched.	Act.	Sched.	Act.	
10/68				12/69		4/70		4/72		
7/18/68				12/69		4/70		4/72		
				12/69		4/70		4/72		
				12/69		4/70		4/72		
				12/69		4/70		4/72		
				3/70		5/70		5/71		
				3/70		5/70		5/71		
4/68		5/68		2/69		4/69		4/70		
				6/69		7/69		7/70		
8/29/68				11/15/68		3/15/69		12/15/69		
4/70		6/70		2/71		5/71		6/72		
				3/70		5/70		5/71		
				3/70		5/70		5/71		
				12/69		4/70		4/71		
				3/69		4/69		10/69		
				12/69		12/70		12/71		
				12/69		4/70		4/72		
				12/69		4/70		4/71		
				12/69		4/70		4/71		
				3/69		4/69		10/69		
				4/70		8/70		4/71		
				2/70		4/70		6/71		
				12/69		4/70		4/71		
				12/69		4/70		4/71		
				12/69		4/70		4/71		
				12/69		4/70		4/71		

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MASSACHUSETTS DIVISION OF WATER POLLUTI

CONCORD
(Incl. Assabet & Sudbury)

Location & Name	Implementation Schedule		Enforcement		Engineer Selected		Grant Application		Preliminary Report & Plans		Appropriation of Funds		Ac of
	Sent	Ackd.	Hearing	Date	Name	Date	Rec'd.	Appr'd	Sch.	Act.	Sched.	Act.	Sch
ACTON													
Municipal											6/70		
ASHLAND													
Nyanza Chemical Co.									12/67				
BILLERICA													
Municipal									3/70		5/70		7/7
(Corenco Corp.)Lowell Rendering									3/70				
North Billerica Company									3/70				
FRAMINGHAM													
General Motors									12/67				
Municipal											4/68		
Roxbury Carpet									5/68				
MAYNARD													
Municipal											6/69		
Digital Equip. Corp.													
NORTH BILLERICA													
Talbot Mills													
NORTHBOROUGH													
Municipal											5/72		
Machinery Electrification									3/72				
Lawrence Candle Co.									3/72				
HUDSON													
Municipal									6/68		9/68		10/
MARLBORO													
Municipal (Westerly STP)													

OF WATER POLLUTION CONTROL B

Appropriation of Funds		Acquisition of Site		Final Plans		Construction Started		Construction Completed		Remarks
Sched.	Act.	Sched.	Act.	Sched	Act.	Sched.	Act.	Sched.	Act.	
										No municipal system
6/70				2/71		4/71		4/72		
				7/68		8/6		1/69		
5/70		7/70		3/71		5/71		5/72		
				3/71		5/71		5/72		
				3/71		5/71		5/72		
				7/68		8/68		4/69		
4/68				11/68		4/69		10/69		
				11/68		4/69		10/69		
6/69				2/70		4/70		4/71		
										Mill closed
5/72				3/73		5/73		5/74		
				3/73		5/73		5/74		
				3/73		5/73		5/74		
9/68		10/68		2/69		4/69		10/69		
				7/68		9/68		10/69		

John Cassaza

These schedules, or the dates that we have established in this schedule, are, to all intents and purposes, the same dates that we have submitted to Secretary Udall back in 1967.

In addition to the dates and the industries and municipalities which we listed in that original submission, we have included in this plan and schedule additional relevant sources of pollution.

During the last year we have been able to disclose in these two river valleys in the case and on Sheet 1 ---

MR. KLASHMAN. Excuse me.

Mr. Stein, I just wanted to clarify something in my own mind.

Mr. Cassaza, as I understand it, these sheets are the dates that were submitted to the Secretary and approved by him, and then what you are going to point out now are those dates where there have been minor adjustments proposed by you?

MR. CASSAZA. Or additions to the schedule.

MR. KLASHMAN. And these are things that you are going to point out that differ from the schedule as approved by the Secretary?

MR. CASSAZA. Right.

In the case of the town of Dracut, you will note on this sheet that the J. P. Stevens Company has been deleted. This deletion should not be made and the dates listed here stand as solicited.

MR. KLASHMAN. These are the dates that were made on the original plan?

MR. CASSAZA. Right. The notes were made on the plan of original implementation.

On Page 2 the Merrimac Metal Finishing Company has been deleted in that it is being discharged to the municipal drainage system. Therefore, it is not subject ---

MR. KLASHMAN. Will you hold it one moment. On J. P. Stevens Company, they will be finished by June, 1971?

MR. CASSAZA. That is what their schedule calls for.

MR. KLASHMAN. I am sorry. The next one is Dracut?

MR. CASSAZA. No. The next one is under Merrimac, The Merrimac Metal Finishing Company has been deleted, and rightly so in that that system is being discharged to the town of Merrimac system and, therefore, our action will be against the town of Merrimac for treating this.

MR. KLASHMAN. Are they already connected to the town?

MR. CASSAZA. Yes.

John Cassaza

Under the town of Merrimac you will note that there has been changes in the dates. These dates were changed following a hearing in our office relative to the matter of pollution by the town of Merrimac. We have issued orders, and the dates listed here are the dates that are now in the ensuing order.

MR. KLASHMAN. Would you mind reviewing those dates?

MR. CASSAZA. The town of Merrimac is to appropriate funds for final plans and specifications or acquisition of the site and for construction by 3/69. These plans are to be completed by 4/70 and construction to be started by 7/70 with an estimated completion date of 7/71.

Under the town of Methuen ---

CHAIRMAN STEIN. That is a two-year extension?

MR. CASSAZA. Two years. It was scheduled to start and be completed in 1969.

CHAIRMAN STEIN. You are suggesting moving it to July of 1971?

MR. CASSAZA. I beg your pardon?

CHAIRMAN STEIN. You originally had the date of June 1969, and your new date is July 1971, two years.

MR. CASSAZA. Right.

MR. KLASHMAN. But what he has said, I believe, and I would like to get this clear, is that they were unable to get the community to move so they had to call them in on starting legal action. Is that correct?

MR. CASSAZA. Yes.

CHAIRMAN STEIN. By the way, I am not saying there is not a good reason for this. What we are saying is this is going to be completed two years later.

MR. CASSAZA. This is our standard procedure: If the community meets its dates and it cannot get itself back up on a schedule, then we will issue a complaint and call them in for an adjudicatory hearing. After all the evidence is in, we will then consider it and issue orders to proceed with the pollution abatement program. Of course, we do not get these people in until after the starting dates, so it necessitates an extension.

CHAIRMAN STEIN. That is right.

MR. CASSAZA. Under the town of Methuen we had adjusted these dates from the original dates to bring them in tune with what the rest of the region was proposing, what we were proposing to do in the rest of the region. It is almost immaterial as to what the particular dates are now, because the town of Methuen, Andover and North Andover and the city of Lawrence are not in a sewerage district. This district was just established this last year and became effective by law approximately six weeks ago. As soon as this district meets, we will sit down with them and establish new dates for the district. So any dates we have now for these communities is because the district is responsible for the construction of pollution abatement facilities.

MR. KLASHMAN. Do you anticipate that the dates for the district will be much beyond the July 1972 date or the June 1972 date that you have for Lawrence? I am sorry. The first project was June 1972, and the second one was July 1973.

MR. CASSAZA. I do not expect that the Lawrence dates call for the final plans to be completed by 1/70. I anticipate that this district will be formed within a month, something like that.

They will have to negotiate with consulting engineers for the preparation for final plans and specifications. We are talking about perhaps a $30 million project in this particular area. I do not anticipate that final plans for this project can be completed in any time shorter than perhaps 18 months. I think that will be very optimistic.

MR. KLASHMAN. So it might be six months beyond this date?

MR. CASSAZA. Yes, six months beyond, I think, that date.

MR. KLASHMAN. The people in the districts are Lawrence ---

MR. McMAHON. Andover and Methuen.

MR. CASSAZA. This, of course, is quite consistent with Federal requirements and wishes and desires, and this has actually resulted in a saving, or will result in a savings, because of the piping costing approximately $15 million on this project for this metropolitan area.

We have deleted under the Methuen the Methuen International Mills because they are in the municipal sewerage system and, therefore, we have deleted them.

MR. KLASHMAN. When will they be connected to the system?

MR. CASSAZA. They are connected to the system now.

MR. KLASHMAN. Do you know when this happened?

MR. CASSAZA. I do not have the information as to the date when they were connected.

MR. KLASHMAN. I wonder if on these industries that are being deleted if we could get the date for the record of when the connection was actually made?

MR. CASSAZA. Yes. We have that data. We do not delete these things.

MR. KLASHMAN. Could we hold this until we get this, Mr. Stein?

CHAIRMAN STEIN. Yes.

Let me cite a procedure that was used in other places. Obviously, as the program moves we are going to have to make and approve adjustments all the time. Now, of course, we have the standards and enforcement operation.

I would suggest that if these things are reasonable, we probably are going to have to have a status meeting every six months. This is just to correct the record, indicate the adjustments we have made and see that we both can go along with you.

These are the type adjustments that you are talking about, Mr. Cassaza - not where the State or Federal Government has really changed the policy, or someone does not go along, or wants to go along, but the force of the fact of the situation and just the administration making it necessary for us to adjust the dates. I think that that is inevitable in any complicated problem like that and we are just going to have to have a continuing record of how we do that.

MR. CASSAZA. We anticipate that this is what we will be doing - submitting periodically such data to you personally.

CHAIRMAN STEIN. Yes.

MR. CASSAZA. Also under Methuen, their Rex Potato Chip has been deleted because they are now out of business. I will also ascertain the date when they did go out subsequently and send them to you.

Under Page 3, in Newburyport we have added to this schedule the Chase Shawmut Company and the Towle Silversmiths, and as a result of surveys we have found that they are contributing pollution to the Merrimack, so we have listed them. I do believe these dates are in there and they are consistent with the other dates that we have in the Merrimack River Valley.

MR. KLASHMAN. Those two are to be done by May 70?

MR. CASSAZA. Right.

Under the city of Haverhill we have made certain changes in their dates whereby ---

MR. KLASHMAN. What page is Haverhill on?

MR. CASSAZA. This is Page 1 again.

MR. KLASHMAN. Where is it?

MR. McMAHON. It is on Page 1.

MR. CASSAZA. We have changed the dates of Haverhill.

John Cassaza

The end results are practically the same I think. As a matter of fact, they have updated. We had originally called for Haverhill to complete its first project by 7/71, and the end result now is to complete its project by 4/71.

Also on the same page we have made certain adjustments on the Continental Can schedule and we have given them a little later date. This ties in with the Haverhill date, because the Continental Can Company now is negotiating with the city of Haverhill -- and I believe these negotiations have been completed -- for their waste to be discharged to the municipal system. So we have made these adjustments accordingly.

Only one comment on Page 2. Under the town of Salisbury we have changed --- Well, we have called the town of Salisbury in for a hearing. They have signed what we call a Consent Order to proceed and have agreed to proceed with an implementation schedule. These dates are the same. We ended up with the same dates that we had originally established for the town. They were in the process of becoming delinquent, so we called them in and we have them back on a schedule, but they are now under a Consent Order.

We have a Consent Order pending for the Salisbury Water Company. We have had them in for a hearing, and they have agreed to ---

MR. KLASHMAN. Excuse me. On Salisbury, in other words, they met this July 1968, date of acquiring the site?

MR. CASSAZA. Yes. They already own the site.

MR. KLASHMAN. The final plans will be out by March 1969?

MR. CASSAZA. Yes.

MR. KLASHMAN. Thank you.

MR. CASSAZA. We do anticipate, in view of your latest recommendations made today relative to ocean outfalls and discharging waste from Newburyport and Salisbury to the Atlantic Ocean, that of necessity any dates that we have originally established with Salisbury will be delayed. This is additional information from your recommendation.

The Salisbury Water Supply Company, we have also had them in for a hearing. They have agreed to sign a Consent Order. This has not been received as of this date, but, again, the end result of their work will not be any later than what we originally anticipated.

That concludes the remarks on the Merrimack River.

MR. KLASHMAN. Mr. Cassaza, may I very quickly review a couple of things.

As I see it, you have asked for a delay in the completion date of the Haverhill project. Well, the Haverhill project you have actually stepped up by three months. You have asked for a delay for about a year in the connection of Continental Can?

MR. CASSAZA. Yes.

MR. KLASHMAN. About a year for Merrimack Metal Finishing Company?

MR. CASSAZA. Well, they are in the municipal sewerage, so ---

MR. KLASHMAN. They will be delayed?

MR. CASSAZA. The treatment will be delayed, but by virtue of their now being in the municipal system we have no jurisdiction over them.

MR. KLASHMAN. What is the longest delay that you have asked for, about two years?

MR. CASSAZA. We have two years for the town of Merrimac.

MR. KLASHMAN. Merrimac, and that is the one that is going ---

MR. CASSAZA. No. They are under orders now.

MR. KLASHMAN. But that is the only one that is two years?

MR. CASSAZA. Yes. And in addition, like North

Andover, for example, if they had proceeded on their own they would have probably been completed by 1970.

MR. KLASHMAN. But going into the district ---

MR. CASSAZA. Going into the district the whole project is delayed.

MR. KLASHMAN. In general, then, with the exception of the district and these, it is about 12 months?

MR. CASSAZA. Right.

MR. KLASHMAN. So it is 12 to 14 months?

MR. CASSAZA. Yes.

MR. KLASHMAN. I have no further questions.

MR. McMAHON. These are only changes, Mr. Chairman.

MR. CASSAZA. I am following through now with the Nashua River. I have not completed.

MR. KLASHMAN. I am sorry.

MR. CASSAZA. On the Nashua River, under Leominster we have changed the Borden Chemical dates and the Foster Grant dates. I believe that the original dates for these two industries was 4/69. We have now changed these dates so that their work will be completed by 7/70 which, of course, is a year and three months, something like that, delay.

Now, these two companies have now signed Consent Orders, and they have agreed to proceed with the dates that we have now given you. This was done after a hearing relative to the matter of pollution by these two industries.

MR. KLASHMAN. Isn't that 12/69, the Borden Company?

MR. CASSAZA. 7/70, Borden Company and 12/69 for the Foster Grant.

MR. KLASHMAN. I see. Thank you.

MR. CASSAZA. The Foster Grant was delayed less than a year because of this action.

Under the town of Fitchburg we have disclosed two additional sources of pollution and have listed them with their dates being the cleanup of their pollution, being the same dates, approximately.

MR. KLASHMAN. Which are the two new ones?

MR. CASSAZA. The American Plastics and the Iver Johnson Arms & Cycle Works.

These dates, they are on the same schedule as the municipal program.

Under Fitchburg we have also listed the Art Photo Services, the Fitchburg Gas and Light, the Hedstrom Associates and the Vogue Wall Coverings, Inc. We have also listed Iver Johnson Company in Fitchburg, the Wachusett Potato Chip Company and Independent Lock Company.

These dates are also consistent and in no case later than any other date we have established for any other municipality or industry in this area.

Under Lunenburg we have listed the Rogers Brothers with a completion date as of 4/71. As you can see, it is consistent with all the other dates.

In Westminster we have listed the Old Mill Restaurant, the Advance Coatings, Inc., and the Decotone Products Company.

I might comment, under the town of Lancaster that here we have listed the Atlantic Union College. The town of Lancaster has now formed a district which is going to pick up the Atlantic Union College, so these dates here will be after we have got the district under way. They are going to be discharging through the Clinton Sewerage treatment plant, which will eliminate one treatment facility in that area, which is, of course, what we are looking for.

That concludes my remarks on Nashua and the Merrimack River.

MR. KLASHMAN. Mr. Cassaza, in the original conference I understood that we were supposed to include the intrastate sources, and there were about 15 of those that you have not mentioned. When we were asking for the compliance dates, we had gotten some of those from you. I wonder if you could update those?

MR. McMAHON: May I comment on this, please, Mr. Chairman?

CHAIRMAN STEIN: Yes.

MR. McMAHON: We are not taking exception to this. In fact, we have come prepared to give the intrastate sources. There is perhaps a little bit of procedural question here in the sense that in the letter from the Secretary of the Interior to Doctor Frechette no reference was made to intrastate as far as the conferees were concerned. Despite this, we will be most happy to present this information, but I would sort of like to qualify this on the record because I am not too sure that from a legal point of view this is proper.

CHAIRMAN STEIN: Your objection is noted. I think the assumption we were proceeding on and the opening statement indicates that in Massachusetts we were considering the intrastate as well as the interstate, but that should not prejudice your exception.

MR. McMAHON: I do know that the Governor recommended intrastate as well, but in the Secretary's letter there was no reference. Nevertheless, we will be most happy to give you this information.

CHAIRMAN STEIN: All right.

MR. CASSAZA: I have passed out to you a list of the polluters on the Concord River Basin and its tributaries thereto, excluding the Assabet and the Sudbury. This listing here, in all cases, does not represent relevant sources of pollution.

The first community listed here is the town of Acton. Now, the town of Acton is not a polluter of any of our waterways.

We have listed the town of Ashland because the town is ambitious. They have an active planning group there. They, for municipal planning, are hoping to proceed to get a sewerage treatment plant in the town.

They do have local problems with subsurface disposal. They wish to bring industry into the community, so they are proceeding with hopes of eventually bringing in a municipal or having a municipal waste treatment facility.

CHAIRMAN STEIN. They do not have a sewerage system there, do they?

MR. CASSAZA. They do not have any municipal sewerage system at this time. We have not listed them in this because they are not a polluter.

In the town of Acton we have the Chemical Company we have listed.

Under Billerica we have listed Municipal Sewerage System. They have already constructed their own municipal waste treatment facility, but this relates to sewer extensions that have to be up along the Concord River to pick up certain portions of North Billerica and to pick up certain of the industries that are in that area which eventually will be discharged to the municipal system, one of the main polluters up here. There are two, Lowell Rendering Company and the North Billerica Rendering Company which are listed and they have hopes of going into the municipal sewerage system.

MR. KLASHMAN. Your list is a little bit different from ours.

MR. CASSAZA. Let me proceed with this and then you can ask me questions of any of the others that you have a mind to.

Under Framingham we have listed the General Motors Company.

Under Maynard, the town of Maynard has an inadequate secondary facility. They are proceeding, they are going into town meeting for appropriations of funds. We again are going to be running into a problem in this particular area because we are going to look into the matter of regionalization between them and surrounding communities, so we may have to delay there.

John Cassàza

In Northboro, again, they do not have a municipal sewerage system, but they have local problems in our planning to be in with the regionalization of the city of Marlboro. So they should not be considered as a polluter. We have listed the Machinery Electrification Company in that community.

In Framingham, again we have listed the Roxbury Carpet Company who is a polluter. They are going into the municipal sewerage system as soon as the town of Framingham builds a larger pumping station in which to take them.

We have listed Framingham Municipal here because they do need an enlargement of their pumping station, but they should not be considered as a relevant source of pollution.

In the town of Hudson, we have listed the town of Hudson. It is a municipal responsibility, but this is again for a pumping station in the community which needs to be rehabilitated and somewhat enlarged and should not be listed as a real source of pollution.

We have also listed Marlboro, the Westerly sewerage plant. They are not polluting but they are developing and with 495 in the area they are quite anxious to proceed with bringing industry into that area.

That concludes what we have listed under this river basin. If you have any areas which are not listed there, I will be glad to comment.

MR. KLASHMAN. I had a view here that we would want to have the dates if we could get them. In Ashland we had a chemical manufacturing company?

MR. CASSAZA. Those have been tied into the sewers, so we have not listed them as contributors to pollution.

MR. KLASHMAN. In other words, they are tied into Ashland?

MR. CASSAZA. Right.

MR. KLASHMAN. The General Electric Company in Ashland?

MR. CASSAZA. Either tied in or they put in their own treatment facility there I believe. They are not a source of pollution.

MR. KLASHMAN. Could we get whatever ---

MR. CASSAZA. Well, you have it here. You have the G. E. there, that they are neutralizing and chlorinating their waste. So they are now treating their own waste.

The same with Ashland Chemical. They are using sand filtration and they are not treating them properly, so we did not list them on this.

MR. KLASHMAN. I see. You have the rest of our list.

Are there any others? For example, Westboro, the secondary treatment plant is satisfactory?

MR. CASSAZA. Right.

MR. KLASHMAN. The Hudson Combing, they have settling facilities?

MR. CASSAZA. Right. Right. There are many places here you are listing, but they are places which have settling facilities which are not pollution. There is a difference.

MR. KLASHMAN. Do you have any comments to make on the list, Mr. Pahren? We have solicited here places that have treatment facilities. Is there any question about it?

MR. PAHREN. Is Hudson Combing Company okay?

MR. CASSAZA. Yes. You asked if Hudson Combing Company is all right. We have investigated that, and we find that there was a problem of a broken line which they repaired, but they are not polluting.

MR. PAHREN. Would you like to comment on Marlboro with a discharge into Hop Brook?

MR. CASSAZA. Well, yes. The Marlboro, early through its agreement plan, has reached its capacity. As a matter of fact, it probably is overloaded. They have put in sandbeds and lagoons there to offset this.

The overall efficiency of this facility, it is well over 90 percent, as reported by their consulting engineers and checked out by us. With that, they are going to have a tertiary treatment, but the point is the effluent is being discharged down to Hop Brook, which is a very small stream. It cannot take it, so they have had problems with odor conditions down there.

Now, that odor condition down in that area may be due to the lack of oxygen down in the water, but it is probably due to algae growing rapidly. In certain areas there, in order to overcome this, they have put in these aerators to eliminate this problem. But the solution is not to put in these aerators but to remove these nutrients.

In that respect, our Division, we gave the very first grant to the town of Marlboro for a research project on the removal of the nutrients from their sewerage treatment facility. Upon the completion of this study, the town is planning to move ahead to implement what this pilot grant research plant does. In the end, we will remove the nutrients so that the condition will no longer exist at Hop Brook.

This is another reason why the westerly plant is being constructed, because the easterly plant just cannot take anymore.

CHAIRMAN STEIN. Let me make a suggestion here. I think we are coming to the stage of the case that we always get when we move ahead to this completion operation.

What I suggest we do, because we are likely to get into this problem again and again in various cases --- As I see it, the Massachusetts program is moving ahead on schedule with certain modifications you had to make, you believe either for administrative reasons when they came in or largely because there was a switch in plans and they decided to consolidate in one district. I will ask Mr. Klashman, and maybe you should do it now, do you think that these proposals are reasonable in each case?

MR. KLASHMAN. Well, on the interstate part I think that the proposals they made certainly are reasonable.

On the intrastate also the ones I see here appear to be reasonable, but I would like to get the record complete between our list and theirs. I think we can do that very simply by getting together afterwards.

CHAIRMAN STEIN. This would have to be done.

Just technically for the record, if this is in the standards which have been approved in another conference and if we make a recommendation that this is all right, we are going to have to spotlight the ones for which we made a

John Cassaza

recommendation. I would suggest that from here on out, within the next month, at least no longer than that and hopefully before that, so we can get these agreed upon and put in the Summary - that we will agree on a master list of the sources. The list can be added to or subtracted from as you have with this.

Now, a lot of the cases are going to say that the work is completed, and I do not think we should eliminate those from the list. Because if we are going to indicate the progress we are making, we should indicate the ones where the work is done.

Again, I would suggest that these work sheets are fine and they should be used by you. But for the conference possibly the only place where we should take them up is where there is a deviation from programs or several main dates. Possibly for the Federal recommendations you have three things and I might suggest a fourth.

1) This may be crucial here and you may want to spotlight it in the conference - the final plans and specifications.

2) start construction.

3) complete construction.

And I would say the fourth operation is to arrange for financing, which very well may be the key, particularly with municipalities.

MR. CASSAZA. In our presentation, we listed this at the beginning.

CHAIRMAN STEIN. I understand. But I am saying when we have this for the Federal-State relationship that these are possibly the four things we should have. The technical staff and the people in the States should agree on the list. Then if we ever have a progress meeting or something again, it seems to me that all we will have to do is go down the list and check the ones which are meeting the schedule or where you would suggest an adjustment on the date. Unless the Federal people or your neighboring State had a question, we would consider those in compliance with the program. I think we have done that in other cases.

If we are going to simplify this, in a sense, for some administrator who is reviewing it, he will have to go backwards and try to understand it. We should have that straightened out. I do not anticipate any difficulty.

MR. KLASHMAN. As I see it from your list, everybody, all the intrastate sources, will have treatment by May of 1972, except for the North Billerica Talbot Mills and Northboro, which is May of 1974. Is that right?

MR. CASSAZA. Yes.

MR. KLASHMAN. But everything else will be done by May of 1972. We can get this list. There is no problem here.

CHAIRMAN STEIN. No. I think this is just a mechanical problem, but I think it will simplify this and highlight the operation when you indicate this.

By the way - and let me just say this - the problem or difficulty of a list like this, as soon as one complies and is off the list and it does not give an indication of the successes, my experience in this is that we better list those if we are going to see it. For example, we were in Chicago last week or the week before and there were three steel companies that everyone was concentrating on because they felt they might not be complying on time, but we had about 30 cities and about 20 other industries which would all comply. When you looked at the whole picture you got quite a different view than if you just concentrated on those which some people might have felt were still in non-compliance.

I think it would be helpful for all concerned if we got this boxscore and the list, then when people have completed they remain on the list but you put down that their work is completed and we are all set. I think this can be worked out. Hopefully, we should be able to have this possibly to issue as an appendix to the summary so we are all in shape. I look for this as a mechanical problem and no problem other than that.

(SEE APPENDIX A)

As far as you are concerned, Mr. Klashman, your recommendation for the extensions that they might want to have in those cases, for those few cases, is reasonable?

MR. KLASHMAN. These do not appear unreasonable.

MR. McMAHON. Mr. Chairman, may I make a point? We have been discussing delays here, and I think I would like to make one more point here.

Generally speaking, delays are caused by several reasons. Number one, I think it was pointed out that in regionalization or in trying to get certain communities together that do have different dates, the most common denominator is usually town, and to form a district and build a larger facility usually takes longer.

Now, this is taken into consideration, benefits to water quality and also cost savings. I think all of us generally agree in the regional concept if you do get better water quality and if the costs are less. In the meantime, it does mean in certain cases there will have to be certain delays.

A second reason, and this is quite apparent in our Consent Orders, as these polluters miss dates, then you have to go back and put them under Consent Orders or call them in for adjudicatory hearings, and this means revising the dates and extensions. We try to compress it, if at all possible, so that the construction dates can remain the same if at all possible. In many cases this does not happen.

There is a third point here, and I do not say it is the major one, but it is one of the problems we have run into. In many cases we get poor engineering reports or final plans that are not adequate from the State point of view. When you reject these, this again causes a delay. Yet, on the other hand, I do not think any State regulatory agency is in business to approve inferior engineering or something that really does not do their job.

One other point, and this has not been brought out -- and I think it should for the people in the Nashua River Basin -- is that the city of Fitchburg has completed a regional report which includes most of the major industries within the Fitchburg area. This is going to involve two sewage treatment plants, one handling the bulk of the municipal waste and one paper company, and another is going to be primarily an industrial plant handling two paper companies and a possibility of taking in another town. This is essentially about a $17 million project.

They also have recommended a program for separation of combined sewers within the Fitchburg area over the next few years. We think this is an excellent project. It has been approved, at least conditionally, by our office and we are making every effort to see that this is implemented as quickly as possible.

CHAIRMAN STEIN. Thank you. Those remarks are well taken. I do not care whether it is a waste facilities construction or you are building a subway or you are building your house, we are doing all this within the limitations and vicissitudes of our general American society and you have the same problems that you have in any society with any project - you have to make the adjustments.

I know we have had cases all over from bond issues being voted down by the voters to mayors being indicted, and anytime that happens you are going to have a delay in the project. Therefore, I do not believe this is peculiar to water pollution. This is just what you have to get. These are the type adjustments we are going to have to make.

The reason we get together is that it is the best thing we could do. By doing this in public the people can make a judgment on whether we are making the right determination or not with this and we can do this also in the best possible way. You know when you talk about these plans and other things that are rejected, I guess Winston Churchill summed it up when he said, "Democracy is the worst form of government, except those others that have been tried from time to time." I think we just have to put up with this.

Do we have any other questions?

MR. KLASHMAN. No.

CHAIRMAN STEIN. Massachusetts, do you have anything more to present?

MR. McMAHON. We have a number of people here from Massachusetts.

CHAIRMAN STEIN. Yes, please proceed.

MR. McMAHON. I would like to call first Mr. Richard Young, who is a Director of the Central Merrimack Valley Regional Planning District.

STATEMENT OF RICHARD H. YOUNG, EXECUTIVE DIRECTOR
CENTRAL MERRIMACK VALLEY REGIONAL PLANNING DISTRICT
LAWRENCE, MASSACHUSETTS

Richard Young

MR. YOUNG. Mr. Chairman and Conferees, ladies and gentlemen, I apologize for not preparing my remarks beforehand. I would have liked to have done so, much rather than spend the time in bed last week with you know what*, so you will have to take it from my penned notes today.

The Central Merrimack Valley Regional Planning District was formed in 1960 for not only the water pollution purpose but for a general regional planning in the central portion of the Merrimack Valley in Massachusetts. At that time, it consisted of the communities of Lawrence, Andover, Methuen and North Andover. By 1964 the District investigations and considerations had progressed in the field of water pollution abatement to the point where one of the policies in the regional plan called for abating pollution by the four communities in the Greater Lawrence area through the construction of one treatment facility.

Since 1964 the District has been expanded gradually until we now include the 15 cities and towns of Lawrence, Haverhill, Newburyport, Andover, North Andover, Methuen, Georgetown, Groveland, Boxford. West Newbury, Merrimac, Amesbury, Salisbury, Newbury and Rowley.

The regional plan and policies of the District are being expanded currently and will, when adopted tomorrow night, call for treatment facilities individually by the city of Newburyport and the Town of Amesbury and Merrimac, and joint facility use by the city of Lawrence, the Towns of Andover, Methuen, North Andover, and by joint facilities to serve Haverhill and Groveland.

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*Hong Kong flu

Beyond this, the District has attempted to categorize intercommunity action by offering assistance and encouragement to its member communities.

We have also programmed the necessary regional planning actions to make the member communities eligible for maximum State and Federal grants, including all available bonuses.

Even more specifically, the District has been active in promoting local actions leading towards joint undertakings.

Unless your questions reveal an interest, I will omit the gory details and summarize our progress by saying that after two years of effort the four Greater Lawrence communities have formed a Greater Lawrence Sanitary District. The principal officials of these communities have been invited to meet on January 8, 1969, to organize the District.

In the Haverhill-Groveland situation we have met with both communities and I am pleased to report agreement in principle. We and they will attack the problem of legal agreement in the near future, and I have every reason to anticipate success similar to that produced in the Lawrence area.

Do not misunderstand my remarks as I am implying there is great enthusiasm for spending the money to do the job, but I take great personal pride in reporting that I think the communities in the Central Merrimack Valley Regional Planning District are organized to get the job done in the most economical fashion.

As I see it, the organizational and intercommunity problems which threatened the accomplishment of the job in 1964 have been resolved as of this date.

CHAIRMAN STEIN. Thank you very much, Mr. Young.

Are there any other comments or questions?

MR. McMAHON. I would just like to add that Mr. Young has worked very closely with our Division in setting up meetings with these communities and getting them together on this water pollution abatement district and we thank you very much, Dick.

CHAIRMAN STEIN. Any questions?

MR. KLASHMAN. I have no questions.

MR. McMAHON. Next I would like to call on Mr. John Pobst who is representing the Greater Lowell Planning Commission.

STATEMENT OF JOHN J. POBST, STAFF CONSULTANT, GREATER LOWER PLANNING COMMISSION, LOWELL, MASSACHUSETTS

MR. POBST. Mr. Chairman, ladies and gentlemen, my name is John Pobst. I am Staff Consultant to the Greater Lowell Area Planning Commission, Lowell, Massachusetts.

We have been working in similar manner to Mr. Young's program in a regional planning commission such as this.

We are not a State agency; we are not a local agency. We are in between, and we have close ties to our particular communities.

Our Commission is representing a region adjacent to Mr. Young's commission on the Merrimack River at the New Hampshire border. The communities in our region are Lowell, Dracut, Tewksbury, Billerica, Westford, Tyngsboro, Dracut --- Pardon me. I named that before. Dunstable and Pepperell.

The community of Pepperell, of course, is on the Nashua River, so we have the two major streams within our region.

Our programs which impinge on the Clean Waters Program are utility planning, which has been going on for a year now, open space and recreation planning and studies of economic development. We see the development of sewers both in terms of cleaning up the rivers and in terms of making greater economic growth possible through industrial development, which is also very important to our region.

At the present time our major priority is with the city of Lowell in our region. This city has a population of about 90,000 and has never had any form of sewage treatment. They have plans to develop moving ahead.

There have been problems in coordination with adjoining communities. We are working toward a possible Sanitary District and have hopes of developing something in this direction during the next year.

Thank you.

CHAIRMAN STEIN. Thank you.

Are there any questions of Mr. Pobst or comments?

(No response.)

CHAIRMAN STEIN. If not, thank you very much.

MR. McMAHON. Next I would like to call Mrs. Mary Anne Stoddart, who is the Coordinator of the Nashua River Clean Up Committee from Groton, Massachusetts. As most of you know, Mrs. Stoddart has been sort of a driving force within Massachusetts within the Nashua River Basin, and we think she has done an outstanding job.

Mrs. Hugh Stoddart

STATEMENT OF MRS. HUGH F. STODDART
MASSACHUSETTS COORDINATOR,
NASHUA RIVER CLEAN UP COMMITTEE
GROTON, MASSACHUSETTS

MRS. STODDART. Thank you.

Chairman Stein, Conferees, ladies and gentlemen, I am Mrs. Hugh F. Stoddart, the Massachusetts Coordinator of the Nashua River Clean Up Committee and I represent the 155,000 people in the Nashua River Watershed who want the maximum number of uses for the Nashua River attained as expeditiously as possible.

I want to thank Mr. Zabriskie, who is Acting Commissioner of the Department of Natural Resources for cordially permitting members of my Committee and me to attend this reconvened Conference today to present a statement for the majority of residents in the Nashua River Watershed.

The Nashua River Clean Up Committee was formed in the summer of 1966 in response to the intolerable condition of the Nashua River which had become septic and putrid due to the combination of pollution, draught and hot weather. The condition of the River was so bad that its stench and sight were nauseating. It sickened the people who lived near it, kept business away from stores, made the river and its adjoining land useless for any purpose and caused some property to lose all of its value. We determined to no longer endure this correctible situation, but vowed to work ceaselessly to restore clean water to our river.

It is no longer summer and the draught has passed. The river looks and smells about the same as it has for the past 30 or 40 years -- real sick, but not quite dead, as it was in the summer of 1966. We are still sorely affected by this ribbon of gray filth (sometimes salmon, milky white or pea green) that snakes its way through our beautiful countryside. Although there is no visible improvement in the quality of water in the Nashua, we are cognizant and appreciative of the unseen progress taking place on Federal, State, local and private levels to clean this river.

We are grateful for the Federal Water Quality Act of 1965 which was the necessary forerunner to all subsequent water pollution abatement action. The passage of the Massachusetts Clean Waters Act of 1966, as amended, was a most important milestone towards the cleanup of the Nashua River. The establishment of criteria for water quality standards and the modified C classification of the main stem of the Nashua River with a 5-year time schedule for compliance were equally important milestones towards the cleanup of the river. The Committee had hoped that we would be successful in having the river classified B for its future highest use, and have been encouraged by an indication of this possibility by former Commissioner Yasi in a letter sent to us dated July 13, 1967. We are submitting a copy of Mr. Yasi's letter to this conference as a part of our statement. As an added incentive for a B classification, we note that the cities and towns testified at the March 28, 1967, Nashua River Classification Hearing that they would like to use the land adjoining the river for recreational purposes. It is the present position of the Department of Natural Resources that they will not acquire land along the Nashua River for open space or outdoor recreation unless the river is of B quality, or is assured of becoming B quality. Therefore, the Nashua River Clean Up Committee requests periodic reevaluation of the Nashua River and its tributaries with the expectation of having its future highest use upgraded.

The passage of the 1966 Federal Clean Water Restoration Act was significant. We have been disappointed, however, in the failure of Congress to appropriate sufficient funds to adequately implement this Act. In fact, we are greatly concerned that the river cleanup program may be slowed because of insufficient funds. We believe that it would be difficult for Massachusetts to prefinance the whole Federal share.

The announcement by the Corps of Engineers that they plan to incorporate the Federal Water Pollution Control Administration water storage requirements for water quality improvement in the North Nashua Reservoir system is important. We would like for the Conferees to take special note of this plan and to encourage and assist the Corps in every possible way so that the plan will become a reality. Low flow augmentation could provide substantial increased flows to raise the quality of water after all treatment facilities have been put into effect and assist in the future maintenance of high quality water.

Now, I had expected, Chairman Stein, that the Corps of Engineers might be here today to present a statement. I was told by a person in their office that this was to be so. I hope that they will have an opportunity to present statements or their plan to you.

MR. KLASHMAN. For the record, Mr. Chairman, if I may, we did invite them and we anticipated they would come, but I have not heard from them.

MRS. STODDART. I was told that they would be here today to present such a statement.

Mrs. Hugh Stoddart

On local and private levels, we are pleased that the Division of Water Pollution Control time schedules approved by Secretary Udall are being met. We are particularly pleased that Mayor Flynn, City Council President Albert, and the City Coucil of the city of Fitchburg and Fitchburg's industries, by far the most serious polluters of the river, have moved fastest to meet their time schedules. We hope that the State will be able to decide quickly on a funding program that will be acceptable to both the city, State and Federal Governments and that Congress will make adequate funds available, so that Fitchburg, its industries, and the affected adjoining towns can move ahead and have their facilities constructed and in operation by April 1972 - the announced time schedule deadline. We are also pleased that Mayor Crossman of Leominster, the City Council and Department of Public Works Director Rasicot are working out an agreement with Foster Grant and Borden Chemical to treat their wastes. It also pleases us to know that Lancaster and Atlantic Union College have formed a sewage abatement district to prepare plans for the treatment of their wastes. We are concerned, however, that with the exception of Fitchburg and its industries, all other polluters with 1968 time schedules to meet are running a little late.

Mrs. Hugh Stoddart

We would like the Division of Water Pollution and Control to adopt the policy of checking periodically with polluters to determine their progress well in advance of their deadlines, so that if they are coasting a little, they can be cranked up and speeded along the way rather than waiting for their deadlines to come and then checking on their compliance, thereby setting the program back several months, a year, or perhaps even more.

We also wish to recognize the educational efforts of the Associated Industries of Massachusetts, particularly those efforts of Mr. William McCarthy, to inform industrial managers of the work they must do to meet State and Federal water pollution control requirements.

We are gratified that the Massachusetts Division of Water Pollution Control has been forceful in applying its authority to cause delinquents to meet their schedules. I cite the Consent Orders issued Borden Chemical and Foster Grant as examples. We hope that the State and the Federal governments will be absolutely strict in forcing complete compliance with these schedules. We view the proper discharge of this responsibility and authority as absolute essentials for the river cleanup.

We are concerned that the State has indicated satisfaction with the treatment of municipal wastes in Ayer, Clinton and Leominster, whereas these municipalities do not chlorinate their effluent after secondary treatment before discharging it into the Nashua River. Approval of secondary treatment for discharge without disinfection does not seem consistent with the State standards for water quality. Clinton's unchlorinated effluent creates a special problem for Lancaster, as they propose to use the land just below the Clinton outlet for park purposes. It does seem to us that the stretch of the river on the South Branch between the Clinton outlet and the confluence of the North and South Branches could, at this time, justifiably be reclassified B from C as its future highest use.

We are anxious that the State also begin to identify polluters to the river and its tributaries, other than the primary ones, and serve them with notices to abate their pollution.

And I was very pleased to hear Mr. Cassaza's remarks concerning identification of some of the additional polluters on the river and new time schedules for their compliance. We certainly favor this action and we hope it will continue.

The establishment of an adequate monitoring program to determine the efficiency of treatment is another concern of our Committee.

We are worried, too, about the sludge deposits, algae and duck weed which all constitute a nuisance condition to the Because the river is slow moving, suspended solids from the paper mills on the North Nashua do not fall out significantly until they reach areas such as Still River, the Ayer Ice House and Pepperell Pond. We would like for the paper mills to consider the removal of even more suspended solids than are normally removed in secondary treatment in order to minimize the formation of these sludge deposits. We hope that the Conferees will give some thought to the control of these problems.

An impressive start has been made to clean up the Nashua River. However, it is only a beginning, and a vast amount of work has yet to be done to reclaim this river. This will require continuous pressure and strict adherence to established schedules, as well as the good will and cooperation of all of the agencies involved.

I would like at this point to thank you very much, Mr. McMahon, and, also, Mr. Slagle of your Division, both of whom have been very helpful to the Committee, and we appreciate your cheerful assistance. (Mr. Yasi's letter follows.)

CHAIRMAN STEIN. Thank you, Mrs. Stoddart. In

The Commonwealth of Massachusetts
Department of Natural Resources
State Office Building, Government Center
100 Cambridge Street, Boston 02202

July 13, 1967

Mrs. Hugh F. Stoddart
Massachusetts Coordinator
Nashua River Clean Up Committee
Farmers Row
Groton, Massachusetts.

Dear Mrs. Stoddart:

In reply to your letter of June 2, 1967, please be advised that due to a prior commitment I was unable to attend the meeting of federal, state and local officials in Leominster on May 21, 1967 to discuss the adequacy of water resources of the Nashua River Basin. The recommendation of the Division of Water Pollution Control is for a C classification on the Nashua River which is defined as: "Suitable for recreational boating; habitat for wildlife and common food and game fishes indigenous to the region; certain industrial cooling and process uses; under some conditions acceptable for public water supply with appropriate treatment. Suitable for irrigation of crops used for consumption after cooking. Good aesthetic value."

It is anticipated that the main stem of the Nashua River from the confluence of the south branch to the north branch to the New Hampshire line will be suitable for bathing as well as other high water quality uses after all required waste treatment facilities are constructed in the Basin. The classification B is not applied on this reach, however, because of the stringency of the dissolved oxygen requirement for B waters.

These classifications are associated with a 7 day 10 year hydrologic return period under existing storage and flow regimes. Conceivably, substantially increased flows could raise the main stem of the Nashua River to a B category. Should the Corps of Engineers or other agency studies reveal an economic justification for flow regulation and subsequent water quality improvement to the B class, we would be most happy to reclassify these subject waters at that time.

I am most appreciative of your interest and desire to preserve and enhance our most vital water resources.

Sincerely,

Robert L. Yasi

Robert L. Yasi
Commissioner

RLY:hw

reading it, Mrs. Stoddart repaired two split infinitives. I think she should have the advantage of the repair.

Are there any questions or comments on this?

(No response.)

CHAIRMAN STEIN. One, Mrs. Stoddart, I think you indicated and you know the Corps was not here, but this notion -- and I say this because we have Mr. Yasi's letter -- the notion that he says, "Should the Corps of Engineers or other agency studies reveal an economic justification for flow regulation and subsequent water quality improvement to the B class, we would be most happy to reclassify these subject waters at that time." Well, these water pollution control agencies you know have nothing to prevent the Federal Water Pollution Control Agency if we do that or the Massachusetts authorities, to ask the Court to provide low flow augmentation for quality purposes. In other words, I do not think we have to necessarily rely on one of these cross studies to come up with what is considered in the traditional rules as the economic justification. That is something you people might keep in mind if that is what you are looking for in the B classification.

MR. KLASHMAN. We have, that is, the Federal Water Pollution Control Administration has. When commenting on the Corps' projects when they are submitted to us under the law, we have asked for stream flow augmentation in cases like this. As a matter of fact, in the project it did come to us. We did ask for stream flow augmentation.

MRS. STODDART. This is why I made the statement regarding the Corps, that they have, in fact, included in their plans water storage requirements which were provided by the Federal Water Pollution Control Administration. I was only anxious that the Corps be present today to present to you their plans so that you would officially know about it.

CHAIRMAN STEIN. Anything further, Mr. McMahon?

MR. McMAHON. I have a question, and perhaps you or Mr. Stein can answer this.

At one time under Section 3 of the Federal Act -- this is the low flow augmentation of the Federal Act -- it was felt that if the benefits were long-term or national in scope --

CHAIRMAN STEIN. General?

MR. McMAHON. Right.

-- the full amount could be paid by the Federal Government. However, I had heard in recent months, although I had not seen this officially, that the Secretary had indicated that this would have to be a cost-sharing arrangement either with the local or, perhaps, the State agencies. Is this correct, or is there a policy decision on this matter?

CHAIRMAN STEIN. I had not heard that. He may have made that in reference to a specific case.

I think the law is clear, unless it has been changed -- we are getting into a very visceral subject here -- but to answer you, this has nothing to do with the economic benefits. In other words, there can be generalized economic benefit for everyone and we can have storage for low flow augmentation. Once we decide or the Federal Government decides to put those features into water resource projects, then we come to another problem and that is the problem of whether Uncle Sam picks up the whole tab or is reimbursed. Unless that can be identified for helping certain people, this is not reimbursable and this becomes a different set of figures.

Generally speaking, water quality for recreational uses as you are talking here is considered a generalized benefit and you cannot tack anyone with the cost of that and make it a reimbursable feature of the project.

That still throws us back to the first operation, and we have to show that at least it is going to pay its way and it is going to be worth putting the money in for water quality improvements. I do not believe the law has been changed on that. I know of no general policy statement, and any statement that he made which may have related to a particular case where this might have been so.

MR. McMAHON. I think it would be interesting to find out from the Corps just what their plans are. I would also suggest that perhaps the recommendations of the Conferees could indicate the extensive possibilities of flow regulation in that particular level.

CHAIRMAN STEIN. We may bring that up. If it is agreeable to the Conferees, we may want to get together have the States get together with the Corps or get together themselves and we can invite the Corps. If we believe that low flow augmentation is needed, then we come up with that.

I think Massachusetts may be the key people, because you know what kind of minimum flows you are going to need to ask for or to consider upgrading the classification. We have done that before in other areas of the country - make a recommendation, then if the Secretary adopts this he will just present this to the Corps and anyone else as part of our Federal operation.

If we have the States with it, of course, we at least are in the batters box and we are off and running. Sometimes we make it. Sometimes we don't.

MR. KLASHMAN. I have no further questions.

CHAIRMAN STEIN. Do you have any other people from Massachusetts?

MR. McMAHON. Yes, I do.

I would like to call on a Mr. Donald Boucher who is representing the town of Lancaster.

STATEMENT OF DONALD E. BOUCHER
LANCASTER REPRESENTATIVE FOR
CLEAN UP OF THE NASHUA RIVER
LANCASTER, MASSACHUSETTS

MR. BOUCHER. Mr. Chairman, Conferees, ladies and gentlemen, my name is Donald Boucher and I represent the town of Lancaster in the matter of pollution, and I am also on the Planning Board.

Before I get into this statement, I just read the paper, the Worcester paper, that they met in Lancaster on the Sewer District Commission just last night, which Atlantic Union College is part of, and I believe I seen $850,000 was put together to get this program under way.

We, the citizens of Lancaster, are appreciative of the efforts to clean up the Nashua River. We welcome the opportunity to restate our wishes for the uses of the Nashua River.

Lancaster is situated where the north and south branches join together to form the main stream of the Nashua River. Therefore, we have many miles of the river flowing through our town.

Looking to the future, the comprehensive plan lists many possibilities to use the river for recreational purposes. Some of the suggestions have been a park for young people's recreation, greenways for walking, horseback riding, bicycle riding, picnics, skiing, snowmobile trails. None of these could become a reality if the river is not cleaned up. We hope that all responsible agencies will continue their efforts and that passing time will not see the drive for cleaning the river relaxed at all.

Our town seal bears the words "Lancaster on the Nashua." We would once again like to be proud that we are on the Nashua.

Thank you.

CHAIRMAN STEIN. Thank you, Mr. Boucher.

Any comments or questions?

(No response.)

CHAIRMAN STEIN. If not, Mr. McMahon?

STATEMENT OF THOMAS McMAHON, DIRECTOR,
WATER POLLUTION CONTROL,
MASSACHUSETTS WATER RESOURCES COMMISSION,
DEPARTMENT OF NATURAL RESOURCES,
BOSTON, MASSACHUSETTS

MR. McMAHON. Mr. Chairman, I believe this is all of the people that intend to speak today. However, I would like to introduce two gentlemen who are representing their respective paper companies and who have worked very closely with the city of Fitchburg in getting this regional scheme under way.

The first gentleman is Mr. Peter Hughes who is representing the Weyerhauser Paper Company and Mr. Frank Pendelton who is representing the Fitchburg Paper Company.

I might ask if there is anyone here from Massachusetts that would like to speak that I have overlooked?

(No response.)

CHAIRMAN STEIN. I think, Mr. Klashman, if that concludes the Massachusetts presentation, you might consider putting your material in on the Federal installations.

MR. KLASHMAN. Mr. Stein, before I do that, I just want to ask Mr. McMahon just a couple of questions before we leave Massachusetts.

CHAIRMAN STEIN. Yes, Mr. Klashman.

MR. KLASHMAN. Mr. McMahon, I understand that at Fitchburg the municipality working with the industries have had a consulting engineering firm develop a plan providing for secondary treatment. What type percentage of removals of sludge, solids and BOD when it goes into effect?

MR. McMAHON. There are two levels of both BOD and suspended solids removed. The first, which was recommended for the additional phase, was 90 percent and the second was 95 percent removal. This was also correlated with certain limitations on the effluent as well.

I might add that within the **standards** of Massachusetts we recommended BOD and similar perameters will have between 80 and 95 percent BOD removal, again depending on the stream classification.

If it is a large stream, of course, the necessity for higher removals come to 95. This is not required.

On small streams such as the Nashua you do have to require a high degree of treatment.

MR. KLASHMAN. In the definition of "secondary treatment" you are saying that in many cases you are going to achieve 90 percent removal. What you are talking about is 90 percent removal?

MR. McMAHON. Yes.

MR. KLASHMAN. In what cases would you go below the 90 percent?

MR. McMAHON. That is a poor question. I really cannot answer that offhand. I think Mr. Cassaza indicated one project that we have here in Massachusetts now, and this is on a research grant, and that is to really determine the present and, also, the future of trickling filter plants within the Commonwealth of Massachusetts.

The trickling filter operation does a good job in the summertime, but in the wintertime the deficiencies get down below or minimum 80 percent. So we are quite interested in trying to see what additional form of programs of phosphate removal or recycling, if we can, to upgrade these trickling filter plants.

Generally speaking, I cannot really give you one right now that is below 90. I think there may be some.

MR. KLASHMAN. In general, would it be fair to say that when you are talking about secondary treatment, what you are really saying is that you are requiring 90 percent unless the standards can be met with something like a trickling filter in which you might get 85 percent?

MR. McMAHON. I will give you two that Mr. Cassaza just informed me about.

On the Merrimack we have two, not huge communities, but we have two communities which we figure BOD removal of about 85 percent.

CHAIRMAN STEIN. I think this is one of the questions we are going to have to probably consider in the conclusions. Maybe I have a suggestion for doing this.

Mrs. Stoddart raised this question, too, on the pulp and paper waste, again with solids - suspended solids with secondary treatment. The difference is that when you talk about secondary treatment no one knows precisely what that means.

Now, I think if we are going to come up with recommendations here, we will have to be a little more precise. I think the time has come when we are dealing with this problem and not just taking out mass pollutants as we were in the past. This notion of just saying "primary" or "secondary" or "tertiary" treatment is not enough. We are going to have to be more consistent. Because throughout the country, for example, we can run primary pollutants, just using BOD as a measure, anywhere from at least 75 in one State to 95 in other places. Between 75 and 95 is a big spread. That may be the whole difference whether a river is polluted or not.

In primary treatment we run all the way sometimes from 25 percent up to 50, 60.

Again, if we are talking about trying to regulate this with any precision and you are talking about these water quality standards, where you have terms with a spread like that, you do not have very much. I hope we will be able to get at that possibly a little.

Are there any other comments?

STATEMENT OF LESTER KLASHMAN, DIRECTOR, NORTHEAST REGION, U. S. DEPARTMENT OF THE INTERIOR, FEDERAL WATER POLLUTION CONTROL ADMINISTRATION, BOSTON, MASSACHUSETTS

MR. KLASHMAN. I am finished. I would just like to make one thing clear though.

I would like to enter into the record a status report on the Federal installations, and I have given to the Conferees and the Reporter a list of the Federal installations in the Merrimack River Basin and Nashua River Basin.

(The above-mentioned Status Report follows.)

A

FEDERAL INSTALLATIONS IN MASSACHUSETTS - MERRIMACK RIV

Installation	Agency	Location	Discharge Quantity in GPD	
			Sanitary	Industrial
Army Housing Area	Army	Bedford, Middlesex Co.	9,600	
Research Annex	Air Force	Bedford, Middlesex Co.	750	
L.G. Hanscomb Field	Air Force	Bedford, Middlesex Co.	800,000	3,000
L.G. Hanscomb Field	Air Force	Bedford, Middlesex Co.		2,000
Fort Devens	Army	Fort Devens, Middlesex Co.	1,750,000	
Reserve Training Center	Navy	Lowell, Middlesex Co.	900	
Maynard Q.M. Text Activity	Army	Maynard, Middlesex Co.	13,500	
Q.M. Research & Engineering Center	Army	Natick, Middlesex Co.	234,000	
"	"	" "		53,000
Nike Boston Site 73CL&H	"	Lincoln, Middlesex Co.	10,000	
Nike Boston Site 83 CL&H	"	Burlington, Middlesex Co.	9,000	
Veterans Admin. Hospital	V.A.	Bedford, Middlesex Co.	240,000	
Parker River Hq. Unit	Bureau of Sport Fisheries&Wildlife	Newburyport, Essex Co.	600	
Parker River Rec. Area	"	"	75	
Merrimack R. Lifeboat Sta.	Coast Guard	"	1,100	

B

ALLATIONS IN MASSACHUSETTS - MERRIMACK RIVER CONFERENCE AREA

cation	Discharge Quantity in GPD		Discharged To	Comments
	Sanitary	Industrial		
llesex Co.	9,600		Ground	Septic tanks & leaching fields: Plans are being developed to tie into Bedford Sewer System.
dlesex Co.	750		Ground	Septic tank & leaching field.
dlesex Co.	800,000	3,000	Met. District Sewer	
dlesex Co.		2,000	Shawsheen River	Coagulation, Aeration, Scum Removal & Settling
Middlesex Co.	1,750,000		Ground	Imhoff tanks to sand beds
llesex Co.	900		Ground	Septic tanks & leaching fields.
dlesex Co.	13,500		Ground	"
llesex Co.	234,000		Natick Town Sewer	
"		53,000	Lake Cochichuate	Chlorinated Cooling water
dlesex Co.	10,000		Ground	Septic tanks & leaching field.
Middlesex Co.	9,000		Ground	Primary settling, activated sludge & leaching drain fields
dlesex Co.	240,000		Potash Brook	Primary settling, trickling filter, sec. settling, sand filters, & chlorination
Essex Co.	600		Ground	Septic tank & leaching field
	75		Ground	3 pit privies
	1,100		Ground	Septic tank & leaching field

A

FEDERAL INSTALLATIONS IN NEW HAMPSHIRE - MERRIMACK RIVE

Installation	Agency	Location	Discharge Quantity in GPD	
			Sanitary	Industrial
Nashua Nat. Fish Hat.	Fish&Wildlife Service	Prop. without City Ident. Hillsboro Co.	200	
"	"	"	150	
"	"	"		2,500,000
Franklin Falls Flood Control Reservoir	Corps of Engineers	Franklin, Merrimack Co.	600	
"	"	"	4 people/day	
Blackwater Flood Control Reservoir	"	Webster, Merrimack Co.	300	
"	"	"	4 people/day	

B

STALLATIONS IN NEW HAMPSHIRE - MERRIMACK RIVER CONFERENCE AREA

ocation	Discharge Quantity in GPD		Discharged To	Comments
	Sanitary	Industrial		
ut City Ident. o Co.	200		Nashua City Sewer	
	150		Ground	Septic tank & leaching field
		2,500,000	Nashua River	Overflow water from fish hatch.
errimack Co.	600		Ground	Septic tank & leaching field
	4 people/day		Ground	2 pit privies, used intermittently by visitors to the dam
rrimack Co.	300		Ground	Septic tank & leaching field
	4 people/day		Ground	1 pit privy, used intermittently by visitors to the dam

Lester Klashman

The only Federal installation where we do have a problem is the first one, which is the Army Housing Area at Bedford, and in that case there are some septic tanks serving some individual homes where the leaching fields are not doing a proper job. Plans are being developed to tie into the Bedford sewer system.

CHAIRMAN STEIN. When is that going to happen?

MR. KLASHMAN. We do not have a date. We will have to get one and submit it for the record.

(SEE APPENDIX B)

CHAIRMAN STEIN. What would we have done if the State came with an answer like that on one of its municipalities?

MR. KLASHMAN. We would have had to give them time to get a date.

CHAIRMAN STEIN. I hope you do not expect reciprocity on that one.

MR. KLASHMAN. Thank you, Mr. Stein.

CHAIRMAN STEIN. Do you have anything, Mr. Healy?

MR. HEALY. No. I am having trouble keeping up with these exchanges.

Closing Statements

CHAIRMAN STEIN. Yes.

Let me try to get this in. If we have nothing else, we have to try to get into the summary of this.

Possibly we have one thing to resolve. We have to get a precise listing from both States and the Federal Government of all the sources that we have listed here, with the additions we have, and, at a minimum, the dates or the type of treatment that we are going to ask for, i.e., both industrial and municipal. Also I would suggest when financing is to be arranged, final plans and specifications, start of construction and complete construction. Is that reasonable? I suggest we do that for everyone, including the Federal installations -- and there is just one that is outstanding with a date -- so we will have those dates for all people to see.

Now, in addition to that, as a writeup, at least in the briefing memorandum to the Secretary, we will have to come up with an explanation on the deviation from the dates that we have had so far from the approval of the standards. As I take it, the recommendations, certainly of the Federal Conferee, will be to approve those that Massachusetts has submitted?

MR. KLASHMAN. On Massachusetts I have no objection. I would recommend that those dates be approved.

Closing Statements

As far as New Hampshire is concerned, the dates that they submitted with the standards which the Secretary approved we think are good dates, with the exception of the dates that he took exception to, and that was Manchester, Concord and Plymouth.

CHAIRMAN STEIN. I wonder if we could come to an agreement on that?

MR. KLASHMAN. I would like to have Mr. Healy talk to this.

CHAIRMAN STEIN. How did the other dates run, generally I mean, except for the other communities?

MR. KLASHMAN. They were consistent with Massachusetts. In other words, the outside date I recall was 1974 or 1975.

MR. HEALY. The outside date was 1977.

MR. KLASHMAN. That was for Manchester, but for the other communities ---

CHAIRMAN STEIN. Except for Manchester, Concord and Plymouth, the other dates are to be completed in the early seventies. Is that correct?

MR KLASHMAN. It was before 1975 if I recall correctly. Is that right, Mr. Pahren?

MR. PAHREN. Boscawen is 1975.

MR. KLASHMAN. My recollection is that they were all 1975 or less that the Secretary approved.

Closing Statements

CHAIRMAN STEIN. Then the only three we have to do --- I hope we can resolve this. If we can, what we can do is resolve the situation for the enforcement dates. Also we can make a recommendation whereby we can move forward, hopefully, by making a recommendation that the Secretary approve the standards on the Merrimack for New Hampshire. Because you cannot very well approve a date for the enforcement dates without doing the other two simultaneously.

Now, we have the dates in the recommendation. Do you have any suggestions or alternatives on the dates for Manchester, Concord and Plymouth?

MR. HEALY I would like, if possible, Mr. Chairman, to make a broader statement than just these three communities, because there are many others in the watershed. In order for you to achieve your objective and for us to likewise reach a successful conclusion for the State of Massachusetts, which is downstream, we ought to have some understanding of what the whole program or what the target date for which we are shooting for is.

We indicated in the submission of our water quality standards that 1977 would see the completion of the Merrimack River pollution control program in New Hampshire. As I said this morning, in doing so we anticipated full Federal appropriations, because our experience leads us to know that communities will not proceed without their fair share of all sources of funds. Now, there has already been a delay in receiving funds at that level.

I might insert this, too, Mr. Chairman: That the Secretary indicated in reviewing our standards that he would like to see us shoot for 1976 as a completion time rather than 1977, and we, in good faith, would like to do this. I think we have suggested that if we possibly can meet the 1976 date we will.

Now, from what was said this morning, too, by many of the spokesmen from New Hampshire, there is in process legislation to begin a prefinancing system to assist us in overcoming the difficulty and inadequate Federal funds. We would like to add here to the original time schedule. In fact, we think we must do so. We think even with prefinancing, if we can assume it is enacted by the Legislature, that this will be required to satisfy those initial dates.

What I am saying is I think we ought to stay with the 1977 dates for the whole watershed. If we can make it in 1976, fine. If we --- Well, I will not make any further guesses, but I think that is where we stand.

We have examined this schedule with the State of

Massachusetts authorities. So far as we are aware, they are quite satisfied with the New Hampshire submission.

If I can leave it at that point, I would like to.

I would say, too, that as far as Plymouth is concerned, we had suggested in our original submission that the necessity for secondary treatment at Plymouth is not compelling. We want secondary treatment in all sources of pollution as a necessary item to make our waters as clean as possible, but we have got to also utilize our funds to the greatest advantage. We thought that Plymouth could be delayed for some long time into the future, but the Secretary, apparently, does not agree with us in this matter. So it has been inserted now in the record, and I suppose we will have to take that into account.

I could add, Mr. Chairman, we have in the legislation now in process included four communities in this watershed for special prefinancing by the Legislature. Those are Nashua, Manchester, Concord and Plymouth. Does this help any?

CHAIRMAN STEIN. Yes. We do not have a problem on the date in Nashua.

MR. KLASHMAN. The Manchester date we had was 1974. Do I understand what you are proposing is that the completion date for Manchester would be 1976?

MR. HEALY. We said 1977.

Closing Statements

MR. KLASHMAN. I know you said 1977, but you said you thought you might be able to do it in 1976.

MR. HEALY. Yes. But we said that not only for Manchester but the entire program.

MR. KLASHMAN. But what we really have to come up with is Concord and Manchester. On Manchester what would be the date for final plans and specs in starting construction?

MR. HEALY. Right now, as was indicated to you by Mayor Mongan this morning, there is a question about the engineering fees as to what is a fair fee. This, incidentally, involves the preparation of final plans and specs for the initial project.

MR. KLASHMAN. When do you think, though, that they will be done?

MR. HEALY. I would think, being as optimistic as we can, we should still say 1977 for Manchester, with the rare possibility that 1976 might be in prospect if we get prefinancing.

MR. KLASHMAN. What would be the date of final plans and specs?

MR. HEALY. For this initial phase, I think that the final plans would be completed in 1970.

MR. KLASHMAN. So that would be December 1970. What

Closing Statements

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MR. KLASHMAN. What would be the date of final plans and specs?

MR. HEALY. For this initial phase, I think that the final plans would be completed in 1970.

MR. KLASHMAN. So that would be December 1970. What about starting construction?

MR. HEALY. They would start construction then on the first project, which would be completed by 1972.

Now, we had anticipated ---

MR. KLASHMAN. Excuse me. The first project for Manchester, what would that consist of?

MR. HEALY. This would consist of the primary treatment facilities and the first phase of the interceptor program, but we want to incorporate the design of the secondary treatment along with the primary system because we think that is the best way of proceeding.

MR. KLASHMAN. That would be done by 1972?

MR. HEALY. This first phase, yes.

MR. KLASHMAN. I mean the construction would start?

MR. HEALY. Would have to begin in 1971.

MR. KLASHMAN. 1971?

MR. HEALY. Yes.

MR. KLASHMAN. And it would be done in 1972?

MR. HEALY. 1972. That is what we have discussed with the city, and I think we have assured your office of this.

MR. KLASHMAN. In other words, by January 1971, it would start, or I guess it would be ---

MR. HEALY. Well, probably a little later on.

MR. KLASHMAN. Probably May of 1971?

MR. HEALY. April or May of 1971.

MR. KLASHMAN. It will be completed when?

MR. HEALY. By the end of 1972.

MR. KLASHMAN. That is primary. That is the first project. What is the second project?

MR. HEALY. Then you begin a long or a series of several projects to complete the interceptor system. We have the notion that it is far better to invest the money in primary treatment and complete interception for the city sewerage and industrial waste problems and, therefore, place all waste under treatment, a minimum level of treatment, rather than to focus attention to getting secondary and still be treating only a very small portion of the flow.

MR. KLASHMAN. Your second phase then, when will the interceptors be done? The completion date I mean.

MR. HEALY. I would have to look this up.

MR. KLASHMAN. I just want to get one thing. The third phase would be the secondaries. Is that right?

MR. HEALY. The secondary, we think, is the last thing we do.

Mr. Lacava is the Chief Engineer for the Commission.

MR. LACAVA. The secondary phase will not be constructed until after the city is under full primary treatment.

CHAIRMAN STEIN. As I understand this -- let us try to work this out -- if your philosophy is that you are going to have primary treatment in, you will have primary treatment in by the end of 1972, at least as to Manchester?

MR. HEALY. We will have the primary treatment plant built. That is, the beginning of the primary treatment. It will not all be built at one time.

MR. LAVACA. It will be up to a capacity of 20 million gallons.

MR. HEALY. Twenty million gallons of the initial project and the final is 40 million gallons.

CHAIRMAN STEIN. When will that be done?

MR. LACAVA. It will all be done by 1977.

CHAIRMAN STEIN. The primary by 1977?

MR. HEALY. No. We are talking about the complete program.

CHAIRMAN STEIN. When will the primary program be completed in Manchester?

MR. LACAVA. The 20 million plant will be completed by 1972. That will be built along with the first phase interceptor.

MR. KLASHMAN. What is the flow now?

MR. LACAVA. Something in the vicinity of 16 million.

MR. KLASHMAN. That will take care of the immediate problem. The 40 million is for the future?

MR. LACAVA. Yes.

CHAIRMAN STEIN. In other words, you probably will have to build more interceptors, but you feel that by the end of 1972 in Manchester you will have relatively the complete flow -- and I am not talking about stormwater -- the complete flow interceptor and primary treatment?

MR. HEALY. No.

CHAIRMAN STEIN. How much will go in bypassing the plant by the end of 1972, dry weather flow?

MR. LACAVA. This is just an estimate, but I submit that probably six to seven million will be under treatment at that time. It might go as high as 10 million.

CHAIRMAN STEIN. In other words, about half your flow will be handled by 1972 and the other will not?

MR. LACAVA. That is true. There is a question of more interception you see.

CHAIRMAN STEIN. I understand that. If I understand your theory correctly, you want to get all this stuff under primary treatment but you are only putting half of it in. I do not quite follow this. If we are going to go along with this theory ---

MR. LACAVA. It is no theory, Mr. Stein. It is just a matter of funds and capacity to meet ---

CHAIRMAN STEIN. No. No. I did not mean the theory in the sense that you are going ahead with the theoretical operation. If your philosophy is to get a whole city covered with primary treatment and put in secondary treatment, this may be a line of approach that I wanted to explore. But if what we are coming up with is just half the city flow being given primary treatment, then really we are not following through on that, are we?

MR. HEALY. I think you misunderstand.

What he is saying is the first project and the reason we had to approach it in this fashion was because of the relative amounts of Federal aid that we received dictates that if we are going to have more than Manchester under way at any one time, well, we have got to not funnel all the funds at that point and leave others destitute of the system. So we have to try to keep work going in different watersheds. As has been indicated, 1972 would see about half the flow under treatment.

Then we continue right on with one project following another to extend the interceptor system to pick up other increments of the flow so that by, approximately, 1975 we will have everything under control as far as ---

CHAIRMAN STEIN. Primary?

MR. HEALY. --- primary treatment is concerned.

CHAIRMAN STEIN. In other words, what you are going to do is put in the primary facilities, and let me see if I can state this, primary facilities to handle your present flow -- that is, without the expansion -- by 1972. But because of the interceptor problem, only about half of that will receive primary treatment in 1972. You do not expect the primary, the interceptors, to be completed until 1975 when the whole city should be getting primary treatment. Is this a fair statement of what you are doing?

MR. HEALY. That is correct. Then we would go right ahead at that point with construction of secondary treatment and complete the entire project by 1977.

CHAIRMAN STEIN. All right. Now, how do you expect to do this in Concord? Is that about the same?

MR. KLASHMAN. No. Concord is less.

CHAIRMAN STEIN. You had less time?

MR. KLASHMAN. I think they did, too.

MR. LACAVA. Concord is already behind schedule because of an intercommunity difficulty at the Boscawen-

Concord line and due to the fact that there is a common industry there, a tannery operating within the confines of both communities. I think this question has been resolved. I think they will be going into plans and specifications for that section of town immediately. These plans and specifications should be completed within a year and ---

MR. KLASHMAN. So that would be 12/69?

MR. LACAVA. Yes, that sounds reasonable. They should go into construction the following spring.

CHAIRMAN STEIN. Do you have the same kind of interceptor problem at Concord? When you finish your primary plant in Concord, will you be receiving substantially all of the city sewage in the system? Is it the same kind of problem that you have in Manchester?

MR. LACAVA. No, it isn't. This is a two-system setup. The system I am speaking about is at the north end of the community serving the town beside Concord. That will be completed within two years.

MR. KLASHMAN. In other words, they start construction April, 1970, and they will be done by December of 1972?

MR. LACAVA. Yes, assuming, of course, that there are funds available.

CHAIRMAN STEIN. No. We understand that assumption.

What I am getting at, Mr. Lacava, is how much of the waste from the seweraged population in Concord will be served by that plant in 1972 when it is completed? Will you cover it all?

MR. LACAVA. No, not at all.

CHAIRMAN STEIN. What percentage will be covered when this plant is finished?

MR. LACAVA. Because of the industry, which is a wet industry, a tannery, I'd say perhaps 40 percent - 30, 40 percent.

CHAIRMAN STEIN. How will you pick up the rest of the waste? Are you going to have to build another plant or more interceptors?

MR. LACAVA. Yes, there will be more interceptors at the south end of the town.

CHAIRMAN STEIN. You are going to pick up 40 percent. How much more of the waste will go into the first plant that we are talking about with the interceptors when you finally get completed? In other words ---

MR. LACAVA. There will be no more, sir. There will be just the 30 or 40 percent.

CHAIRMAN STEIN. The south plant will take care of 60 percent of the waste. Is that right?

MR. LACAVA. Right.

CHAIRMAN STEIN. When will that be completed?

MR. LACAVA. I really do not remember what the schedule is for the remainder.

MR. HEALY. I would have to look at it, too.

CHAIRMAN STEIN. That is just primary treatment, right, so far that we are talking about?

MR. LACAVA. Yes.

CHAIRMAN STEIN. When you intend to put secondary treatment in Concord, are you going to have two secondary treatment plants--one at the north and one at the south end of town?

MR. LACAVA. That will be necessary.

CHAIRMAN STEIN. This is as far as we can go.

In Plymouth what is your situation when you build your primary treatment plant?

MR. HEALY: They are building that now.

CHAIRMAN STEIN: When will that be completed?

MR. HEALY: It should be completed next fall.

CHAIRMAN STEIN: Next fall in Plymouth, how much of the town will that cover?

MR. HEALY: All of the town. The town has a lagoon serving a small portion of the community, probably less than 20 percent and the remainder is going to be treated in the plant that is under construction now.

Closing Statements

MR. KLASHMAN. Mr. Healy, the date in the standards for Concord was December of 1975. That was the date that you had proposed. That was for secondary?

MR. HEALY. That was for secondary.

MR. LACAVA. That sounds very much like it.

MR. KLASHMAN. So do I understand that when you build,the south end of the town, is that going to be a secondary plant or is that going to be a primary plant, too?

MR. HEALY. The initial proposal was for a primary treatment plant. Now, of course, we have had to modify those plants to include secondary.

MR. KLASHMAN. So, ultimately, the December 1975, date is secondary?

MR. HEALY. Those four communities I referred to - Nashua, Manchester, Concord and now Plymouth because this has been an added requirement - are all going to have to be secondary plants.

MR. KLASHMAN. Let me just make sure I understand now. The Concord, the north end primary plant, that first phase in the north end plant, is that going to be a secondary plant or primary?

MR. LACAVA. The first phase will be primary.

Closing Statements

MR. KLASHMAN. And that will be the 12/69 and 1972 dates that you gave, completed by 1972. But by December of 1975 you will have completed secondary for the north end and for the south end of town?

CHAIRMAN STEIN. In Concord?

MR. KLASHMAN. Yes, that is the date.

MR. LACAVA. That will have to be ---

CHAIRMAN STEIN. December of 1975?

MR. KLASHMAN. Yes. And the dates for planning and starting construction will have to be worked out.

CHAIRMAN STEIN. The date is for 1975 in Concord for secondary.

What is the last date for secondary, December 1975, in Plymouth?

MR. KLASHMAN. That is Concord. Plymouth I did not not get the dates.

MR. HEALY. There was never one established for Plymouth.

MR. KLASHMAN. What would they be? Do you think you could meet December of 1975?

MR. HEALY. If the Legislature accepts our proposal.

MR. KLASHMAN. Could you start in 1975?

MR. LACAVA. The planning could start.

MR. HEALY. The planning could start, but not until 1970.

MR. KLASHMAN. By April of 1970?

MR. HEALY. Yes.

MR. KLASHMAN. And it could be finished in Plymouth by December of 1972, right?

MR. HEALY. Yes.

MR. KLASHMAN. And the plans and specs would be done by December of 1969?

MR. LACAVA. We would need more than eight months.

MR. KLASHMAN. Why not leave it December 1975.

MR.HEALY. I would think so.

CHAIRMAN STEIN. When is the completion date of the secondary?

MR. KLASHMAN. 1972 for Plymouth.

CHAIRMAN STEIN. On secondary?

MR. KLASHMAN. Yes. In other words, he is doing better than what we had recommended.

CHAIRMAN STEIN. December of 1972?

MR. KLASHAMAN. Yes.

MR. HEALY. All of this we are saying pyramids here, because this is all based on the Legislature doing certain things.

Closing Statements

CHAIRMAN STEIN. Let me say we recognize this. It is the same as the problems that they have in Massachusetts.

Let us do this: We are setting the tentative plans and we will give in the Summary the notion of what you have to have, certain prerequisites, in your opinion, of legislative financial action.

In Plymouth we are sure to have the secondary facility built by December of 1972; in Concord by December 1975. Is that correct?

MR. KLASHMAN. Yes.

CHAIRMAN STEIN. The only one we have to arrive at is Manchester, and I think you talked 1975.

MR. KLASHMAN. No. We had 1974.

CHAIRMAN STEIN. He had 1974. You had 1975.

MR. KLASHMAN. He had 1977.

MR. HEALY. 1977, yes.

CHAIRMAN STEIN. Do you think we can make that with a prayer, December of 1977, and let you work these dates out on the other three and set this to rest with your ---

MR. KLASHMAN. I think he can accept the 1976, and if Massachusetts has no objection with what he has to do, I would be willing to recommend that we accept it.

MR. LACAVA. They are talking about a $20 million plant, Bill, and there are many problems in that city. These problems take time to resolve.

MR. HEALY. I am willing, with the appropriate reservations, to attempt to make the 1976 date in Manchester -- but I am doing it with "tongue in cheek."

CHAIRMAN STEIN. We recognize that. I think we are going to have to have several things here. Let me try to summarize this.

The Conferees, we will come up with a time schedule on what has to be done with cities and industries. We will indicate New Hampshire reservations - that it has to be contingent in New Hampshire on legislative action by the State Legislature and the provision of financing. We also will indicate that this is a very complex problem.

I would hope that we would get these dates, and I will say I am just giving the conclusion of the last date:

For Plymouth, December of 1972.

The secondary treatment of Concord, December 1975.

Manchester, December of 1976.

I think, in order to work this out, and we have had this in other areas of the country and I want to suggest this: That what we are going to have to do is plan on about a six-month progress meeting where the States and the Interstate

Agency will come in and report to everyone in the Federal Government on developments. As we go along, we will be able to mark more and more industries and cities completed. But we will have to make refinements and adjustments in the dates or recommendations, because I do not know if the Secretary is going to accept it, and I surely do not know the next Secretary. But we will have to make recommendations the way we made it in Massachusetts on these dates.

The reason I say this to get started, and I state it candidly, he had one that he is two years behind. I do not think there is any point in belaboring that, but I think we have to get a frame of reference to set this up community by community so we know what we are doing.

MR. KLASHMAN. That is what I wanted to find out, what Massachusetts has to say.

CHAIRMAN STEIN. Yes, both States, because we are in agreement with this.

MR. HEALY. Before you consult with Massachusetts -- and I want it to be taken in the proper spirit, because it is intended in the vein of cooperation and not to frustrate anybody's efforts; and I think we all have to be on the same wave length here, we here; and I am sure if you attended any of our legislative hearings you would see what I mean -- the

State feels that this is a three-party obligation, State, Local and Federal. Now, we are going to make our very best effort to obtain prefinancing because of the inadequacy of Federal funding, but we regard that as an obligation. If we are unsuccessful, the only alternative that we see -- and it is not very palatable to us -- is a slowdown in the program.

We know that that does not help anybody, because, as you said this morning, Mr. Chairman, the costs are increasing all the time and we do not want any delays because it just means more expense for everyone. But that is the ultimate, and we might as well face it -- that if we cannot obtain prefinancing, then we are going to have to consider a change in the schedules. This has already been recognized by our people, by Mr. Edwards and others at that level; and much as we dislike the prospect, there it is. This is not, however, going to make us deviate from a real strong effort for prefinancing this session.

MR. PELOQUIN: I was going to add, Mr. Chairman, along this line that I would like to suggest that the Summary show the State and Interstate Conferees urged Federal support of the appropriations in the full amount as authorized for construction purposes.

CHAIRMAN STEIN: That will be done, but under law we cannot do that.

MR. KLASHMAN: Do I understand, Mr. Peloquin, that you have no objection to the differences in the dates between Massachusetts and New Hampshire?

MR. PELOQUIN: I do not object to the dates. They are close enough. There is only one community here, Manchester, where there is a gap - the largest gap of any community. I think this is something we can live with.

MR. KLASHMAN: And you, Mr. McMahon?

MR. McMAHON: Mr. Chairman, if Mr. Healy believes he can meet these dates and he is convinced that this program can move along, I certainly would agree.

Now, I would just certainly like a little confirmation on this. I think what we are doing here is perhaps trying to compromise on something that is maybe unrealistic, and I think we would be doing everyone a disservice if we are doing that. I would go back to Bill Healy and say that if this is unrealistic, perhaps, we should look at it a little more.

This is probably something the Secretary would accept, but --

CHAIRMAN STEIN: Well, let me try to do this: I do not think this is done in a spirit of compromise. We know the way the various laws are written. Goodness knows, I wish we would implement all the laws.

Now, the question here is we have an enforcement date and we have to have standards. With these things not approved, we find an inhibition of moving ahead in getting a grant and so forth. I do not think you have that problem in Massachusetts vis-a-vis New Hampshire.

We do have that problem in New Hampshire.

Now, operating on this in good faith and what we can stand, I think what we need is a base line to move from. I think that in the absence of that base line we are going to have certain things not resolved. Now, I do not think that helps either the Federal program or the New Hampshire program until that is resolved. I think we have a formula where we have a good chance of getting this resolved with the notion that we are going to have, as we had with your program, even when it was resolved, periodic meetings to make adjustments in those dates as you have problems.

Now, unless we resolve it there may be a technical limitation on eligibility of certain communities for maximum grants in Massachusetts in certain cases, and unless we update ---

MR. McMAHON: I agree with New Hampshire statement.

CHAIRMAN STEIN: All right.

Briefly, do you have another point?

MR. KLASHMAN: Yes, there are three other communities that I wanted to discuss before we leave the schedule.

CHAIRMAN STEIN: All right.

MR. KLASHMAN: I understand that Pembroke and Allenstown were not in the original standards submission but that they are sources of pollution?

MR. HEALY: They are on tributaries.

MR. KLASHMAN: They are not on interstate streams?

MR. LACAVA: They are on the Suncook River. That has not been declared an interstate stream.

MR. KLASHMAN. That does not affect the main stream?

MR. HEALY. This was reviewed with your office.

MR. KLASHMAN. Do you have any comment, Mr. Pahren?

MR. PAHREN. No. We have not made any changes, Bill. The information you sent to us on March 15, 1965, indicated that there were sources of pollution to the Merrimack and our staff has seen the pipes.

MR. KLASHMAN. What do you mean? Do they discharge to the Merrimack or Suncook?

MR. PAHREN. Merrimack.

CHAIRMAN STEIN. Well, we have had this before. Let me suggest the solution that we have worked out with the Great Lakes States here.

This is a factual situation. Obviously, sitting in the room we can't resolve this. I think the areas we had today were expanded on by Mr. McMahon with several sources he did not list before. I would suggest that to get this program under way and get these rough edges down - and we always come to this point - between now and the next few weeks, hopefully before the next progress meeting, come to a factual determination on whether they should be included or not. I am sure there will not be a difference because I never heard of one of these factual things that could not be resolved by the technical staff. But if there is we can hear the different points of view.

MR. KLASHMAN. If these are intrastate, then we have no concern.

MR. HEALY. Both of them, I can say this, Mr. Chairman, have completed their preliminary planning. They are in the process of getting final plans and specs under way. So they are both going to have projects, anyhow.

Now, the exact status of whether they should be in the interstate package or intrastate, they will be in the program.

MR. KLASHMAN. But in the early part of 1970?

MR. HEALY. I wish you would not keep prompting me.

MR. KLASHMAN. What I meant is those are not 1977 projects.

MR. LACAVA. Well, they will be no later than 1977.

CHAIRMAN STEIN. I think those communities will be waiting for the first list. I know that the engineers love to dissect BOD's, but let us try to get out if we can.

MR. KLASHMAN. One other thing. On the Hudson there were some dates where the final plans were supposed to be done in August of 1968 but that was not met.

MR. HEALY. They are a special case.

MR. KLASHMAN. Will you be able to submit new dates?

MR. HEALY. I think we will be able to put in new dates. There is a question whether they are going to connect to the city of Nashua system or build a plant of their own, but there is an engineering study under way.

MR. LACAVA. They should be in now but it isn't. It is overdue.

CHAIRMAN STEIN. We will do this, but again I think this list system will handle this.

Let me again say, for those people that are not familiar with this, that in dealing with waste pollution it is something like going to the zoo. When you go to the zoo two days in a row you never see the same animals because some die and some are born. You have the same thing here, the situation always keeps changing.

Now, unless we get a firm, basic list at this stage that we can go over, with a boxscore, and we go down the roll and where there are changes they will be noted, we will be spending a lot of time going around and around. I think once we get that boxscore lined up, not only the technical people but the other people will be able to judge progress - judge what the regulatory agency, State, Federal and Interstate are doing, what the communities are doing, what the industry is doing and then this will become clear. But, as in many games, you cannot tell the players without a scorecard. I think our next job is to get that scorecard laid out abundantly clear, so when we come in next time we will be able to follow it.

Now let me go down these other comments very briefly because I think there was agreement. I do not know how far we are going to do this.

Are we in agreement that both States and the Merrimack system on issue 1 will require that sewerage systems, with collection sewers terminating in adequate treatment plants, shall be provided in those areas along the stream where sewers do not now exist and where homes discharge either raw wastes or septic tank effluent to the watercourse and where local treatment facilities will not suffice? How are we going to follow up on that? Do we get a report on activities on that or is that just a pious statement?

MR. McMAHON. I think we made the statement earlier, Mr. Stein, that as far as every one of these recommendations is concerned, other than No. 13, we consider these as an inherent part of our program, or that there is an appropriate agency in the State that is handling this. Everything except No. 13, which is the situation involving a boat pollution control law.

Closing Statements

CHAIRMAN STEIN. Well, I find it difficult, unless we are going to assign a task group and unless these are just statements of policy, to come up with a report on these. How are we going to know what these mean? What are these meant for

MR. McMAHON. I would say these are statements of policy, because, as you know, it reads: "Consideration shall be given in the water pollution control program as necessary to the following." I think you do agree with this, Bill, in New Hampshire as a matter of policy.

MR. HEALY. Yes.

MR. McMAHON. But as far as a task force, I think this would be completely unnecessary.

CHAIRMAN STEIN. I have no objection to that. I want to clarify a few points, then, on this. I raise this now so we will not get into difficulties or squabbles later, because this can be one of the most vexing things. We have to make a judgment, it seems to me, all municipal and industrial waste in the Merrimack River Basin ought to receive a minimum of secondary treatment or equivalent.

Now, the question is, what do we mean by "secondary equivalent?" From the discussions here, I take it that you both mean that "secondary treatment" means a minimum of 90 but it could be designed on the 85 percent level.

MR. HEALY. If you are questioning the design, if you think this is the time to raise this issue, if you think the filter is undersized, the time is when it is planned. But I object and I want the record to show my objection to any 95 percent efficiency level as being a general requirement.

CHAIRMAN STEIN. No, this is not a general requirement. The point is what lawyers talk about, the term of "burden of proof."

If you come up with a design less than 90 percent, the question is going to be asked or the burden of proof is going to be on the State agency to indicate why less than a 90 percent plant is appropriate. By the same token, if the Federal Government, when a plant comes in and they say, as I doubt they ever will, they want 98 and 99 percent, I think the rule that they use is the burden of proof is on us to present to you why that extra stuff is needed. This does not mean that you cannot have plants above or below 90 percent. It is just the question of when you ask the question.

Let us move on, because I think we have done this enough. Let me ask just one question. This is No. 4. When you say, "All effluents containing domestic wastes are to receive adequate disinfection," does that mean year-round disinfection?

percent reduction of BOD, unless it can be demonstrated in a particular plant that the water quality of the stream will be met at something less than that, as authorized for that community. But the justification otherwise ---

MR. McMAHON. We phrase it somewhat differently in the sense that we say "secondary treatment is 80 to 95 percent BOD removal," and in that range whatever is necessary to meet the water quality criteria. In other words, if you need 95, you put in 95.

CHAIRMAN STEIN. I see. At least 90?

MR. HEALY. Do you do this as a tertiary treatment effort?

MR. McMAHON. We have not tried to associate, Bill, tertiary treatment with BOD removal.

MR. HEALY. We are speaking specifically of the conventional primary and secondary treatment?

MR. McMAHON. Yes.

MR. KLASHMAN. I think what you said is more or less what I said, I feel, Mr. Chairman.

CHAIRMAN STEIN. I want to get at an operating judgment on this. I have no brief or any formulation on this. What I want to do is set up a ground rule so we do not get on these interminable squabbles.

The notion that I have said is "If you have;" and the way I put it is "If you have less than 90." Then if anyone asks you for an explanation, you should be able to give the explanation. Under your system, you would give an explanation in any case up to 95, from 80 to 95.

Now, the notion as far as the ground rule -- and I know this from sad experience in dealing with our technical people -- if you are providing 90 or more, I think the burden will be on the Federal people to indicate why that is not enough. If you are providing less than 90 and they ask why, I think that part of your operation will facilitate things if the State can give us a reason why this is the case and that it is protecting water quality standards.

If that is satisfactory, we will move on. That is a procedural operation. Just on that, is that agreeable?

MR. HEALY. I do not want to get into any long-winded debate on it. What we intend to do is have secondary facilities at these locations and operate them to the very best of their ability, their capacity, properly size them so they take care of present and future loads and then get the maximum effort out of the plant. Whether it is 80 or 95 percent is really unimportant, because if it is 86 percent and your goal is 90 percent, well, you have failed. I do not think this is what we are talking about.

I think we are going to operate these facilities to the very best of our ability. In fact, if we do not, then the communities that are being assisted will be deprived of their State aid.

MR. KLASHMAN. Could we say it in another way? What we are talking about, really, is that activated sludge facilities would be put in for communities requiring them, and in those cases where you had special cases where activated sludge was not indicated, where you went to a lesser degree of treatment, there would be a reason for that. But, in general, like at Manchester ---

MR. HEALY. Well, you have the situation that Tom was pointing up - the deficiencies depending on the season of the year. He spoke of trickling filters, that they are not as satisfactory in winter operation as in warm-weather operation.

MR. KLASHMAN. We are talking about a design. If a trickling filter plant is designed properly, it is capable of achieving 85, or at least that is what we have found.

MR. HEALY. Right.

MR. KLASHMAN. However, if it is not designed properly, you cannot get the 85. What we are saying is that in those cases where you are going for activated sludge it will be designed for 90 percent at least, which is what they are capable of doing. In those cases where you go in for not activated sludge because the size of the community is such that you feel ---

MR. HEALY. A lagoon, for example?

MR. KLASHMAN. Well, a lagoon or trickling filter plant is indicated because of the particular situation, that there you would go for maybe a design of 85. This is what we are talking about.

I recognize that when you get down to the operation that we have another problem. Even if you design it for 85, we are going to have a problem of getting up to that.

MR. HEALY. You are right. The treatment has to be tailored to meet the need. There is no doubt about that. But that selection is going to be made at that very outset. Then your system, you are fixed, and you have to be careful in the capacities that are built into the plant so that you are going to be able to accommodate to yourself the present and future loading.

MR. KLASHMAN. So what Mr. Stein said was that by secondary treatment we were talking about 90 percent except in those cases where the State standards could be met with a lesser degree.

Closing Statements

MR. HEALY. Are we going to start speaking in terms of plant deficiencies, too?

MR. KLASHMAN. We are talking about the design of it.

MR. LACAVA. Does Mr. Stein mean that we are all going to have activated sludge plants?

CHAIRMAN STEIN. Wait. Wait. All I tried to do here was try to get an operating rule understood by you fellows to facilitate the grant applications. The reason I brought this up is to try, at the beginning, to do away with the problems we have had in other cases with the question.

Now, presumably we are not together on this, and I will just let a few cases come up. If they are then not resolved you will be looking for a rule. As far as I can tell, what are people to do if you put in a grant or put in an application for a construction grant? As far as I can see, what our people do, they are supposed to have 90 percent, and if you have 90 percent treatment and everything else is okay, to let it go by. If there is less than 90 percent they will probably ask for an explanation.

We do not have to put this down, but I am telling you that that is what is going to happen. This is necessary for the operation. I think everyone here is in agreement on what we are doing is just a question of a mode of operation that is going to happen anyway. So let us go on with this.

MR. LACAVA. I would like to add one more thought. What the Chairman just said is completely incompatible with what Mr. Klashman said.

CHAIRMAN STEIN. I do not think so.

MR. LACAVA. He said 90 percent is activated sludge, 85 percent is trickling filter.

Is that not what you said?

MR. KLASHMAN. Yes. What I just said ---

MR. LACAVA. Let me finish my statement.

If 90 percent is the cutoff level, the level at which questions are going to be asked, and this is going to be used for a basis of design, well, the trickling filter is ruled out as a device.

MR. KLASHMAN. No.

MR. LACAVA. This is what it means. Please clarify.

MR. KLASHMAN. What I understood Mr. Stein to say is if your standard, if the river quality could be met with a trickling filter, you know -- and this is going to be on the smaller communities, of course -- that you would design that trickling filter plant.

What I was saying was you would design that trickling filter plant on 85 percent. You could design it on 75 or 80,

Closing Statements

MR. KLASHMAN. That is what we meant.

MR. HEALY. In New Hampshire it means year-round disinfection.

CHAIRMAN STEIN. In Massachusetts?

MR. McMAHON. In Massachusetts it is a policy within our State --- In fact, it is not a policy. It is within our standard of quality approved by the Secretary. It indicates that the Division may approve seasonal chlorination rather than year-round chlorination.

CHAIRMAN STEIN. Let me ask the next question for clarification, and I do not have many more on this.

What does "Maximum removal of nutrients, including phosphates" mean? Does that mean that we are going to require something like chemical treatment in addition to the ordinary sediment treatment?

MR. KLASHMAN. No. Do you want to let me finish?

CHAIRMAN STEIN. All right.

MR. KLASHMAN. What that means, in this initial phase it does not mean we are going to require something beyond an activated sludge plant which, properly operated, can remove sludge, but that in those cases where phosphate removal becomes necessary in the future, then it will be required. This is what we are saying.

Closing Statements

MR. PELOQUIN. Mr. Chairman, I think we are going beyond the intent of the second session of the conference. I would like to read a section or a paragraph from the Secretary's letter calling the conference. The Secretary says, "I believe it necessary to set compliance schedules that are more compatible with the intent of the Enforcement Conference and with the approved Massachusetts schedule."

This is what we have done. And the recommendation, I concur with Mr. McMahon, that the report will define nothing.

I feel also that the States have submitted implementation plans which will achieve the classifications which have been approved. There are additional considerations here included in the recommendations, and these additional considerations, for the most part, are standard procedure in the policies and routine activities of the State Water Pollution Control Agencies and I do not think it is necessary to take these item by item.

We agreed that we will consider these in all of our activities, but the intent of the conference, as specified in the Secretary's letter, was to reconcile the dates. I think we are going beyond that at this point.

MR. LACAVA. Mr. Chairman, there is also ---

CHAIRMAN STEIN. Just one moment. One at a time.

The point is that you know that the Secretary is my boss and I read his letters, too.

In the letter to Governor King he said, "While the primary attention may be placed on time schedules, as I have discussed above, these sessions will provide an opportunity to review the entire situation."

I think that is clear. We are not taking up every point. If this is standard procedure, we sure do not have an agreement on the standard procedure. I think the issues that we are making here, making at the conference, are very, very clear.

Now, the last one, a very small one, is just a case in point and that is if Massachusetts does not suspend chlorination during the winter - and I think this is in the record - that this in their program and a view from us is not in order unless that is specifically taken up.

Now, in view of the Governor's letter to Secretary Udall and considering when the past situation is to be reviewed, if you believe that statement and your view prevailed, you would have saved us all a lot of time without waiting until now to make your comments. I also believe Mr. Peloquin, that if you wished to make that comment, that it was pertinent early this morning when Mr. Pahren read this statement.

MR. PELOQUIN. It was our understanding at that time that these were being presented for consideration and only for consideration and were not to be made a part of the Secretary's recommendations nor a part of the standards, which apparently is what is being attempted here.

MR. LACAVA. It does appear here, Mr. Chairman, that you are forcing commitments over and beyond what were intended.

CHAIRMAN STEIN. What commitment have I forced?

MR. LACAVA. You threw in a 90 percent in there, and I do not see that anywhere in here.

CHAIRMAN STEIN. Mr. Lacava, let me repeat this and repeat this very plainly: Mr. Klashman and I have consistently said we are not asking for 90 percent necessarily. If we say that over and over and over again and you still persist that we are asking for 90 percent, I do not know what we can do.

MR. LACAVA. I think you have made the record clear. You are not asking for 90 percent?

CHAIRMAN STEIN. That is right.

MR. LACAVA. No, you said it.

CHAIRMAN STEIN. "Not necessarily," that is right. But if you ---

MR. LACAVA. You said, "Not necessarily"?

CHAIRMAN STEIN. Right. If you are going to ask for less than 90 percent, you may very well be asked why. That is all we have said.

MR. HEALY. That is really, Mr. Chairman -- and I do not intend to irritate you -- in effect, you are saying, I think, that if we are not seeking 90 percent, that we should be prepared with an explanation?

CHAIRMAN STEIN. Right.

MR. HEALY. Then if that is so, then the 90 percent is a standard?

MR. LACAVA. Sure. If it is 90 percent in each case, is this what you mean, Lester?

MR. KLASHMAN. The point is we have two States involved here down in the Massachusetts part of the basin, both in the Nashua River and in the Merrimack. We are talking about in most of the larger communities 90 percent. As a matter of fact, in Fitchburg they are talking about 90 to 95 percent. In Manchester, which is your largest community, we are talking about an activated sludge. Is that what you are talking?

MR. LACAVA. We are not even sure, Lester, and I do not see why through a conference you people should force us to agree to 90 percent, which is essentially activated sludge, when the plans and the studies and the industrial waste involved in these studies may lead to other devices for treatment. This, we believe, or I believe, is entirely unnecessary. This you can be assured of: That whatever plant goes in there will work very efficiently, and we are holding ourselves to this.

MR. KLASHMAN. If a plant less than 90 percent will meet the standards, then we will have no objection.

MR. LACAVA. Now what do you mean by "standards?"

MR. KLASHMAN. By the criteria which you establish in the river.

MR. LACAVA. If they meet the river situation?

CHAIRMAN STEIN. Yes. I think this is outside ---

MR. HEALY. Excuse me. May I just explore that?

CHAIRMAN STEIN. Go ahead.

MR. HEALY: You say if the overall treatment meets the--

MR. KLASHMAN: If the secondary treatment you are providing

MR. HEALY: --meets the classification standards, implying that this will satisfy you?

MR. KLASHMAN: In other words, if you are proposing ---

MR. HEALY: If this is so, we are all set.

MR. KLASHMAN: If you are proposing less than an activated sludge plant, which will be a trickling filter plant on the station and the river quality on the criteria you submit, yes, this is acceptable.

MR. HEALY. Could I put it in a positive way? If we are putting in a treatment of all locations of all discharges and the criteria for the particular class of water that applies here is being satisfied, then we will be meeting your requirements?

MR. KLASHAMAN. Yes.

MR. HEALY. Fine.

CHAIRMAN STEIN. Do you want a recess while you have that conversation?

MR. KLASHMAN. I would like to recess for two minutes.

CHAIRMAN STEIN. I think we are at the end of the conference.

MR. KLASHMAN. If you want to wait and let me tell him something, fine. But I think we have to recess. I want to talk to him for a few minutes.

CHAIRMAN STEIN. Mr. Klashman, I think we have to go on with the conference. I should make the point that it is the policy of the Federal Government to have open meetings as a public agency, and I, as Chairman, deplore any private conversations where the press and the public are not fully advised of this. I do not think this is any way to do the public business.

Do we want to include in the terms of the conference control over the ships or do you just want to let that go?

MR. KLASHMAN. Are you talking about No. 13?

CHAIRMAN STEIN. Yes.

MR. McMAHON. May I just make a comment here?

CHAIRMAN STEIN. Yes.

MR. McMAHON. Going back several months ago when we first went over this report with members of the Regional Office there were certain items that we felt, at least in Massachusetts, should not have been included in the Conference Report. However, after a certain amount of negotiation it was felt that these recommendations, which were general matters of policy with each of the States, could be adopted in the proper light. Now, we had agreed to these things, but it appears now that we are reading additional commitments into this. If this is the case, I hate to put it this way, but if we cannot accept this on the basis that we went over this in Boston, then I think that at least Massachusetts as a Conferee would have to object to some of these.

MR. KLASHMAN. What is it you object to?

MR. McMAHON. First of all, I am not too sure that the 90 percent has been fully explored to our satisfaction. I think there are a few other questions here. These are all considerations and are general policy matters within each of our agencies.

Now, if we can accept it as this and sort of wipe away the cobwebs and in trying that we may perhaps be associated with this, then I think everybody is going to be happy. But I see no real purpose in dwelling on this and trying to make something out of it that really is not there. This is my feeling.

CHAIRMAN STEIN. I agree with you. But I think we do not have an agreement on this 90 percent or any of that.

MR. McMAHON. We agreed in Boston, as I recall. Bill, would you not say that we had gone over this in a fair amount of detail?

MR. HEALY. Yes. My recollection there, Mr. Chairman, is that there was no real problem in this area. I do not recall that we requested or achieved any particular percentage. If I can, I will characterize it by saying that in the trade amongst ourselves as engineers we certainly know what we can expect of secondary facilities. If we did not, somebody should fire us.

We willfully,of I can put it that way, select various secondary methods to meet the needs of the industry or municipalities. We do this to get the maximum benefit for the dollars invested. I think that is all we can expect. If we need treatment over and above this level, we must think over other needs of treatment, tertiary treatment, certain treatment to serve the particular situation.

I think it is going to be very uncomfortable for all of us if we start working in terms of percentages, because the plant will not operate at an established level of percentage at all times, and I think you understand this, Mr. Chairman.

CHAIRMAN STEIN. I think your point is well taken. The point is that I think it is clear we do not have all specific agreements in these operations, and this, again, was raised by the Chairman at his request.

I think we do have a mode of operation to go on and go ahead with, and I think if we have any problems on secondar treatment, we will just handle these on a case-by-case basis.

Now, there are two cases that Mr. McMahon had that seemed all right when we had them this morning.

MR. McMAHON. Any of these we feel we will be able to justify, and this should come up for review by the Federal Grants people.

CHAIRMAN STEIN. I do not have a problem with that.

MR. McMAHON. I say this is a routine thing that is handled without us spending a lot of energy here talking about it.

CHAIRMAN STEIN. This has been done at various other conferences, because this, in a sense, gets, as far as I can see, to be a sticky and crucial issue. If it does not, all right. What I suggested about this,about an hour ago when this went on,was, hopefully, we are not going to have any problem. If we do, we will meet it on an individual basis. We surely do not have an agreement.

MR. HEALY. I think, Mr. Chairman, and I do not want to extend this, but you have adequate remedies at your disposal, and your people do, and we certainly cannot complain of any exposure to these rules or compliances. That is, if we are not operating these plants properly or to their maximum advantage, then you can see to it that we do not get the funds for their programs or plants. Many things can be done to see that these things are met.

I think we ought to approach this by doing the very best we can to operate at their highest level.

MR. McMAHON. Are we on recommendations now?

CHAIRMAN STEIN. No. Let us go ahead with one question, and this was do you want to make a special point? Do you want to leave this just as it is? You had a problem on 13.

MR. McMAHON. I do not know if it is a problem. It is something we are concerned about. We plan to file legislation.

CHAIRMAN STEIN. Does the Conference have to do anything,or do we have to have a committee on 13,or can we just let it stand this way?

MR. McMAHON. I would merely refer to my earlier statement that this appears to be an excellent suggestion and it is something that Massachusetts is planning on implementing within the next 12 to 18 months.

CHAIRMAN STEIN. Are there any other questions or anything else we want to add?

(No response.)

CHAIRMAN STEIN. I think we are on our way. I want to again thank you all for coming.

MR. McMAHON. Mr. Chairman, could I make a recommendation to the Conference?

CHAIRMAN STEIN. Surely.

MR. McMAHON. I would perhaps ask the other Conferees from the States and the Interstate if they agree with this particular statement, if they would perhaps endorse it. I have just put Massachusetts in here now.

Closing Statements

The Massachusetts Conferee, in reflection of the existing and future detrimental effect caused by the lack of Federal grant appropriations in the States' implementation programs, urge that the Federal Water Pollution Control Administration and the Secretary of Interior recommend to the Congress of the United States the adoption of a fiscal program consistent with the anticipated construction schedules of waste treatment facilities required throughout the Nation.

It is further recommended that any recommendation in Federal financial assistance be consistent with the present grant percentage levels provided for in the Federal Water Pollution Control Act.

I would further urge a separate Congressional appropriation for reimbursement monies to States that have prefinanced in anticipation of future Federal grant funds.

CHAIRMAN STEIN. Off the record here.

(Discussion off the record.)

CHAIRMAN STEIN. Back on the record.

Do you want to read this again for the Secretary or do you want to submit this a little later?

MR. McMAHON. It probably could be improved as far as the language.

MR. HEALY. I would like an opportunity to polish it up, but it is certainly acceptable to us.

Closing Statements

CHAIRMAN STEIN. We will keep it open and when we get that we will put a copy in to Mr. Klashman and send a copy to Washington for the Secretary and a copy for the Reporter to be inserted in the record as if read at this point. (The above-mentioned statement follows; original appended.)

"STATEMENT of the State and Interstate Conferees at the
Reconvened Conference on the Merrimack and
Nashua Rivers - December 18, 1968

"In noting the detrimental effect of Federal construction grant cut-backs in appropriations on State water pollution control programs, the conferees from the State of New Hampshire, the Commonwealth of Massachusetts, and the New England Interstate Water Pollution Control Commission urge that the Federal Water Pollution Control Administration and the Secretary of the Interior recommend to the Congress of the United States the adoption of a fiscal program consistent with the implementation programs adopted by the States throughout the Nation.

"It is further recommended that legislative amendments to the Federal Water Pollution Control Act do not vary the present grant percentages to communities for construction of waste treatment facilities or, if alternative means of financing are introduced, the alternative financing measures be at least the equivalent of the present percentages specified in the act.

"The conferees should also urge the passage of a separate appropriation to finance the reimburseable clause of the Federal Act to repay States that have or will pre-finance the eligible Federal portions of treatment facilities in anticipation of future Federal reimbursements."

MR. KLASHMAN. I understand, and correct me if I am wrong, but in the summary that the Secretary puts out that it will include these recommendations which the States have accepted, with the exceptions made by Mr. McMahon?

MR. McMAHON. It is really not an exception but a qualification.

CHAIRMAN STEIN. Yes, as consideration.

MR. KLASHMAN. Okay.

CHAIRMAN STEIN. As consideration.

MR. PELOQUIN. As consideration, right.

MR. McMAHON. That is what it says up there, "Consideration shall be given."

CHAIRMAN STEIN. The reason I am getting at these is for consideration.

As far as I can see, these may necessarily have been written this way, but they are not the kind of thing you can really go out and enforce. If they were to be enforced, this might be one of the reasons it is exploited. It would have to be at this time.

Obviously, this is not what the Conferees wanted to do, so these are suggested recommendations. Because I do not know anyone who could, you know, really enforce it on the basis of that.

Again, does anyone else have something to say before we wind up?

(No response).

CHAIRMAN STEIN. With all this, I am sure we have really made tremendous advances today. We have a situation now in which everyone - State, Federal, local municipalities and industries - are committed to the cleanup of the Nashua-Merrimack Basin.

The question now is not whether the basin is going to be cleaned up, but when it is going to be cleaned up.

As everyone knows, the real key question here might be likened to what makes the world go round? In a commercial country like ours, it is money. This is the essential question.

We recognize that the States, the localities, the Federal Government all have severe financial problems that must be met. This is a major factor in the cleanup of our rivers. We have substantial agreement on what has to be done and precisely who has to do it. All the sources are identified and have been presented with their program.

I believe that we have a time schedule. While it might be at this time somewhat optimistic, depending upon certain contingencies such as providing things happen right and we are lucky in the forseeable future, we may be on our way to a cleaner river.

I want to point this out: As you saw toward the end, as we lifted the lid on certain future considerations, there are still many problems to be resolved. We are entering, really, a new phase on this one and that is compliance. I am afraid that that has its sticky problems as well as the phase that we have just gone through.

I hope this will take a direct answer, over and above the remark before, that we were forcing New Hampshire to do something at a conference. I have been coming up to New Hampshire for many years. I never knew the Federal Government to force New Hampshire to do anything by a conference or any other means.

With that, I want to, again, thank you all for coming. We stand adjourned.

(Whereupon the conference adjouned at 5:17 p.m.)

APPENDIX A

TABLE 1 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN NEW HAMPSHIRE
(As submitted for the record by the State of New Hampshire.)

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Completion of Financing	Completion of Plans	Start Construction	Finish Construction
Franconia Paper Corporation Lincoln - Paper	None	Secondary	-	-	-	5/69
Municipal Franklin - Sanitary	None	Secondary	-	-	3/69	12/70
Municipal Boscawen - Sanitary	None	Secondary	-	-	-	12/72
Brezner Tanning Corporation Boscawen - Tannery	None	Secondary	-	-	-	12/72
Penacook Fibre Company Concord - White Water	None	Secondary	-	-	-	12/72
Municipal Concord - Sanitary #1	None	Primary North	-	12/69	4/70	12/72
- Sanitary #2	None	Secondary North	-	-	-	12/75
- Sanitary #3	None	Secondary South	-	-	-	12/75
Municipal Hooksett - Sanitary	None	Secondary	-	-	-	9/69
French Brothers Beef Company Hooksett -	-	Secondary	-	-	-	9/69
State Industrial School Manchester - Sanitary & Indust.	None	Secondary	-	-	-	12/75

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TABLE 1 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN NEW HAMPSHIRE

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Completion of Financing	Completion of Plans	Start Construction	Finish Construction
Municipal						
Manchester - Sanitary #1	None	Primary	-	12/70	4/71	12/72
- Sanitary #2	-	Interceptors	-	-	-	12/75
- Sanitary #3	-	Secondary	-	-	-	12/76
M. Schwer Realty Company Manchester - Sanitary	None	Secondary	-	-	-	12/75
Granite State Packing Company Manchester - Packing	None	Secondary	-	-	-	12/75
MKM Knitting Mills, Inc. Manchester - Textile	None	Secondary	-	-	-	12/75
Manchester Hosiery Mills Manchester - Textile	None	Secondary	-	-	-	12/75
Seal Tanning Company Manchester - Tannery	None	Secondary	-	-	-	12/75
Stephens Spinning Company Manchester - Textile	None	Secondary	-	-	-	12/75
Waumbec Mills, Inc. Manchester - Textile	None	Secondary	-	-	-	12/75
Foster Grant Company Manchester -	-	Secondary	-	-	-	12/75

TABLE 1 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN NEW HAMPSHIRE

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Completion of Financing	Completion of Plans	Start Construction	Finish Construction
Municipal Merrimack - Sanitary	None	Secondary	Complete	3/68	2/70	11/71
Merrimack Leather Company Merrimack -	None	Secondary	-	3/68	2/70	11/71
New England Pole Company Merrimack -	-	-	-	-	-	Complete
Municipal Nashua - Sanitary	Part Primary	Secondary	-	-	-	12/74
Granite State Tanning Company Nashua - Tannery	Settling	Secondary	-	-	-	12/74
Sanders Associates Nashua - Plating	None	Equivalent to Secondary	-	-	-	12/74
Johns Manville Company Nashua - White Water, Asbestos	Settling	Equivalent to Secondary	-	-	-	12/74
Hampshire Chemical Company Nashua -	Ammonia Recovery	-	-	-	-	Complete
Municipal Hudson - Sanitary	None	Secondary	7/70	8/68	2/71	9/72
Municipal Derry - Sanitary	Secondary	-	-	-	-	Complete
Municipal Salem - Sanitary	Secondary & Cl_2	-	-	-	-	Complete

APPENDIX A

TABLE 2 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS
(As submitted for the record by the State of Massachusetts.)

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Municipal Tyngsboro - Sanitary	None	Secondary	3/70	12/70	4/71	4/72
Southwell Combing Company Chelmsford - Scouring	Grease Recovery	Secondary	-	2/69	4/69	4/70
Gilet Wool Scouring Corporation Chelmsford - Wool Scouring	None	Secondary	-	2/69	4/69	4/70
Municipal Chelmsford - Sanitary #1 - Sanitary #2	None None	Secondary Secondary	2/68 2/69	2/69 2/70	4/69 5/70	4/71 5/71
J. P. Stevens & Company Dracut -	None	Secondary	-	2/70	6/70	6/71
Municipal Dracut - Sanitary	None	Secondary	6/70	7/71	9/71	11/72
Nyanza Chemical Company Ashland -	Secondary	Tie to Municipal	-	7/68	8/68	1/69
Municipal (East) Marlborough - Sanitary	Secondary & Cl_2	Phosphate Removal		Pilot Plant		
Roxbury Carpet Company Framingham -	None	Tie to Municipal	-	11/68	4/69	10/69

TABLE 2 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
General Motors Corporation Framingham -	None	Tie to Municipal	-	7/68	8/68	4/69
Municipal Framingham - Sanitary	M. D. C.	Pumping Station	4/68	11/68	4/69	10/69
Municipal Westborough - Sanitary	Inadequate Secondary	Secondary	-	-	7/68	6/69
Municipal Northborough - Sanitary	None	Secondary	5/72	3/73	5/73	5/74
Lawrence Candle Company Northborough -	None	Secondary	-	3/73	5/73	5/74
Machinery Electrification Northborough -	None	Secondary	-	3/73	5/73	5/74
Municipal Hudson - Sanitary	Secondary & Cl_2	Pumping Station	9/68	2/69	4/69	10/69
Municipal Maynard - Sanitary	Inadequate Secondary	Secondary	6/69	2/70	4/70	4/71
Digital Equipment Corporation Maynard -	Tied to Maynard	Pretreatment	-	-	-	-

TABLE 2 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Municipal Acton - Sanitary	None	Secondary	6/70	2/71	4/71	4/72
Municipal Concord - Sanitary	Secondary	Chlorination	-	-	-	Complete
Municipal Billerica - Sanitary	Secondary & Cl_2	Interceptor	5/70	3/71	5/71	5/72
North Billerica Company Billerica -	None	Secondary	-	3/71	5/71	5/72
Lowell Rendering Company Billerica -	Grease Recovery	Secondary	-	3/71	5/71	5/72
Ames Textile Lowell - Textile	None	Secondary	-	-	6/71	6/73
Vertipile, Inc. Lowell -	Centrifuges	Secondary	-	-	6/71	6/73
Jean-Alan Products Company Lowell -	None	Secondary	-	-	6/71	6/73
Lawrence Manufacturing Company Lowell -	None	Secondary	-	-	6/71	6/73
Pellon Corporation Lowell -	None	Secondary	-	-	6/71	6/73

TABLE 2 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Robinson Top & Yarn Dye Lowell -	None	Secondary	-	-	6/71	6/73
Byfield Felting Company Lowell -	None	Secondary	-	-	6/71	6/73
United Elastic Company Lowell -	None	Secondary	-	-	6/71	6/73
Vogue Silver Company Lowell -	None	None	-	-	-	Insignificant
Middlesex Worsted Spinning Company Lowell -	None	Secondary	-	-	6/71	6/73
Suffolk Knitting Company Lowell -	None	Secondary	-	-	6/71	6/73
Commodore Foods, Inc. Lowell -	None	Secondary	-	-	6/71	6/73
Municipal Lowell - Sanitary #1 - Sanitary #2	None -	Secondary Secondary	12/68 12/68	1/70 3/71	6/70 6/71	6/72 6/73
State Hospital Tewksbury - Sanitary	Secondary & Cl_2	-	-	-	-	Complete
Municipal Andover - Sanitary	Part None Part Secondary	Secondary	4/68	1/69	3/69	3/70

TABLE 2 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Mead Corporation Lawrence - Paper	None	Secondary	-	-	6/70	7/73
Oxford Paper Company Lawrence - Paper	None	Secondary	-	-	6/70	7/73
Agawam Dye Works, Inc. Lawrence - Dyeing	None	Secondary	-	-	6/70	7/73
Merrimack Paper Company Lawrence - Paper	None	Secondary	-	-	6/70	7/73
Lawrence Wool Scouring Company Lawrence - Wool Scouring	Grease Recovery	Secondary	-	3/70	6/70	7/73
Municipal Lawrence - Sanitary #1	None	Secondary	9/67	1/70	6/70	6/72
- Sanitary #2	-	Secondary	-	1/71	7/71	7/73
Wipex, Inc. North Andover -	None	Secondary	-	-	6/68	9/68
Western Electric Company North Andover - Sanitary & Plating	Neutralization	Secondary	-	Complete	3/69	3/70
Municipal North Andover - Sanitary	None	Secondary	4/68	1/69	3/69	3/70

TABLE 2 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Essex Chrome Plating						
Methuen -	None	Secondary	-	1/69	4/69	4/71
Municipal						
Methuen - Sanitary #1	None	Secondary	9/67	1/69	4/69	4/71
- Sanitary #2	-	Interceptor	9/67	1/71	4/71	12/72
Haverhill Plating						
Haverhill -	None	Secondary	-	3/69	7/69	7/70
L. H. Hamel Leather						
Haverhill -	None	Secondary	-	3/69	7/69	7/70
Continental Can Company						
Haverhill -	None	Secondary	-	4/68	7/68	7/69
Hoyt & Worthen Tanning Company	Grease &					
Haverhill -	Oil Recovery	Secondary	-	3/69	7/69	7/70
Cowan & Shain, Inc.						
Haverhill -	None	Secondary	-	3/69	7/69	7/70
C. F. Jameson Company						
Haverhill -	None	Secondary	-	3/69	7/69	7/70
Municipal						
Haverhill - Sanitary #1	None	Secondary	8/67	3/69	7/69	7/71
- Sanitary #2	-	Interceptor	3/70	3/71	7/71	7/72
Municipal						
Groveland - Sanitary	None	Secondary	12/68	12/69	3/70	3/71

TABLE 2 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Municipal Merrimac - Sanitary	None	Secondary	3/69	4/70	7/70	7/71
Amesbury Tanning Amesbury -	None	Secondary	-	5/69	6/69	6/70
Amesbury Specialty Amesbury -	None	Secondary	-	5/69	6/69	6/70
Amesbury Fibre Corporation Amesbury -	Out of Business					
Merrimack Hat Company Amesbury -	None	Secondary	-	5/69	6/69	6/70
Amesbury Metal Products Company Amesbury -	None	Equivalent to Secondary	-	5/69	6/69	6/70
Municipal Amesbury - Sanitary	None	Secondary	8/68	5/69	6/69	6/70
Towle Silversmith Newburyport -	None	Secondary	-	8/69	10/69	5/70
Chase Shawmut Company Newburyport -	None	Secondary	-	8/69	11/69	5/70
Municipal Newburyport - Sanitary	Primary & Cl_2	Secondary or Ocean Discharge	12/69	2/71	4/71	4/72

TABLE 2 - DISCHARGERS TO THE MERRIMACK RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Salisbury Water Company Salisbury -	None	Secondary	7/67	6/68	7/68	7/69
Municipal Salisbury - Sanitary	None	Secondary or Ocean Discharge	10/69	12/70	4/71	4/72

Appendix A

TABLE 3 - DISCHARGERS TO THE NASHUA RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS
(As submitted for the record by the State of Massachusetts.)

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Old Mill Restaurant Westminster -	None	Secondary	-	12/69	4/70	4/71
Advance Coatings, Inc. Westminster -	None	Secondary	-	12/69	4/70	4/71
Decotone Products Division (Fitchburg Paper Company) Westminster -	None	Secondary	-	12/69	4/70	4/71
Art Photo Service, Inc. Fitchburg -	None	Secondary	-	12/69	12/70	12/71
Fitchburg Gas & Light Company Fitchburg -	None	Secondary	-	12/69	4/70	4/72
Hedstrom Associates Fitchburg -	None	Secondary	-	12/69	4/70	4/71
Vogue Wall Coverings, Inc. Fitchburg -	None	Secondary	-	12/69	4/70	4/71
Wachusett Potato Chip Company Fitchburg -	None	Secondary	-	4/70	8/70	4/71
Independent Lock Company Fitchburg -	None	Secondary	-	2/70	4/70	6/71
Iver Johnson Fitchburg -	None	Secondary	-	3/69	4/69	10/69

TABLE 3 - DISCHARGERS TO THE NASHUA RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Weyerhaeuser Paper Company Fitchburg - Paper	None	Secondary	-	-	4/70	4/72
Fitchburg Paper Company Fitchburg - Paper	None	Secondary	-	12/69	4/70	4/72
Simonds Saw & Steel Company Fitchburg -	None	Secondary	-	12/69	4/70	4/72
Falulah Paper Company Fitchburg - Paper	Vacuum Sludge, Chemical Precipitation	Secondary	-	12/69	4/70	4/72
Municipal Fitchburg - Sanitary	Inadequate Secondary	Secondary	10/68	12/69	4/70	4/72
Jennison Company Fitchburg -	None	Secondary	-	3/69	4/69	10/69
Rogers Brothers Lunenburg -	None	Secondary	-	12/69	4/70	4/71
Foster Grant Company Leominster -	Lagoon	Secondary	-	11/68	3/69	12/69
Bordon Chemical Company Leominster -	Lagoons	Secondary	-	6/69	7/69	7/70
Municipal Leominster - Sanitary	Secondary	Secondary	-	-	-	Complete

TABLE 3 - DISCHARGERS TO THE NASHUA RIVER AND CERTAIN TRIBUTARIES IN MASSACHUSETTS

Municipality or Industry Location - Type of Waste	Present Treatment	Proposed Treatment	Appropriation of Funds	Completion of Plans	Start Construction	Finish Construction
Atlantic Union College Lancaster - Sanitary	Part Primary Part Secondary	Secondary	4/68	2/69	4/69	4/70
Municipal Clinton - Sanitary	Secondary	Add Cl_2	-	3/69	4/69	7/69
Municipal Ayer - Sanitary	Secondary	Add Cl_2	-	3/69	4/69	7/69
Hollingsworth & Vose Company Groton -	Settling	Secondary	-	3/70	5/70	5/71
Groton Leatherboard Company Groton -	None	Secondary	-	3/70	5/70	5/71
St. Regis Paper Company Pepperell - Paper	None	Secondary	-	3/70	5/70	5/71
American Plastics Fitchburg -	None	Secondary	3/70	12/69	4/70	4/71
Bemis Company, Inc. Pepperell -	None	Secondary	-	3/70	5/70	5/71
Municipal Pepperell - Sanitary	Primary	Secondary	4/70	2/71	5/71	6/72

New England Interstate Water Pollution Control Commission

73 TREMONT STREET · BOSTON · MASSACHUSETTS 02108

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CONNECTICUT
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RHODE ISLAND
VERMONT

January 20, 1969

Lester M. Klashman, Regional Director
Northeast Region FWPCA
JFK Federal Building, 23rd fl
Boston, Mass. 02203

Dear Mr. Klashman:

As you will recall, toward the end of the reconvened conference on the Merrimack and Nashua Rivers at Concord, N.H., on December 18, 1968, the State and interstate conferees concurred in introducing into the record a statement requesting the support of the FWPCA and of the Secretary of the Interior in the adoption of a fiscal program consistent with approved State implementation programs. The statement has been finalized and concurred in by the State and interstate conferees and a copy thereof is attached for inclusion in the Proceedings of the Conference.

Very truly yours,

Alfred E Peloquin

Alfred E. Peloquin
Executive Secretary

AEP/efc
Enc.
c-McMahon
c-Healy

STATEMENT of the Conferees at the Reconvened Conference on the Merrimack and Nashua River - December 18, 1968

" In noting the detrimental effect of Federal Construction grant cut-backs in appropriations on State water pollution control programs the Conferees from the State of New Hampshire, the Commonwealth of Massachusetts, and the New England Interstate Water Pollution Control Commission urge that the Federal Water Pollution Control Administration and the Secretary of Interior recommend to the Congress of the United States the adoption of a fiscal program consistent with the implementation programs adopted by the States throughout the nation.

It is further recommended that legislative amendments to the Federal Water Pollution Control Act do not vary the present grant percentages to communities for construction of waste treatment facilities or if alternative means of financing are introduced the alternative financing measures be at least the equivalent of the present percentages specified in the act.

The Conferees would also urge the passage of a separate appropriation to finance the reimburseable clause of the Federal Act to repay States that have or will pre-finance the eligible Federal portions of treatment facilities in anticipation of future Federal reimbursements."

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